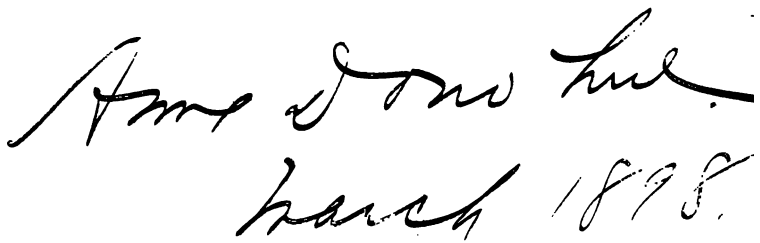

THE ILLUSTRATION OF BOOKS

THE ILLUSTRATION OF BOOKS A MANUAL FOR THE USE OF STUDENTS, NOTES FOR A COURSE OF LECTURES AT THE SLADE SCHOOL, UNIVERSITY COLLEGE

BY

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PREFACE.

THESE lectures were delivered in the Slade School, University College, at the request and suggestion of Professor F. Brown, and, I believe, were the first, or among the first, serious attempts in this country to point out all the various methods of making and reproducing drawings for book and newspaper illustration

Since they were first delivered, now some three winters ago, courses of lectures on illustration, and classes for instruction in drawing and engraving have been started in almost all art schools.

It seemed to me, therefore, that a small manual on the subject might be useful.

There is no attempt in this book to define Art, or even to tell the student how to draw; that he learns in his ordinary school work. Still less is there any endeavour to dictate, or even suggest, any especial style, or manner of handling, or technique.

But illustration is, up to a certain point, a mechanical craft, which must be learned, and can be learned, by any one. And ignorance of the requirements and absolute necessities are evident all around us.

The book, therefore, might rather be described as a series of tips or hints — to put it on as low a plane as possible—the result of practical experience, which should enable the student to make his drawings so that they will produce a good effect on the printed page; but, first of all, he must be able to make the drawing well. No one can teach him that; but he can be taught what materials he should use, where he can

get them, and how he should employ them. That is all I have tried to do.

As I have said in this book repeatedly, processes are discovered and perfected almost daily. Since these lectures were last given, the method of etching zinc and copper half-tone blocks has been entirely revolutionised. Now, there is no inking up of plates; the photograph on the metal serves as a protecting and acid-resisting ground, and the biting is done as simply as in ordinary etching; though, of course, it is the lines or dots which are left in relief.

Possibly before the book is out, even greater improvements and developments may be made.

Nor have I attempted to describe all the tricks, dodges, and clever schemes employed in newspaper offices for making blocks from photographs, or for the rapid reproduction

of sketches, such as drawing on lithographic transfer paper, making photographic enlargements on fugitive prints. All are most useful and valuable in their way, but not exactly what one would tell a student to do. If he becomes an illustrator he will learn these things fast enough.

As the book is passing through the press Mr. W. Lewis Fraser, the art manager of "The Century" magazine, writes me that he thinks it "a good practical book, likely to be of much use to the young illustrator, and save the art editor many a pang and many a sorrow." I hope so, and it is with this hope that the book is published.

JOSEPH PENNELL.

LONDON, *Oct.*, 1895.

THE ILLUSTRATION OF BOOKS.

LECTURE I.

WHAT IS ILLUSTRATION?

THE craving for pictures, that is, for illustrations, is as old as the world. The cave-dweller felt it when he scratched on the walls of his house, or carved the handle of his battle-axe; one there was "who stayed by the tents with the women, and traced strange devices with a burnt stick upon the ground." Others painted

themselves blue, and were beautiful ; and these were the first illustrators.

The Egyptians were the most prolific, and their works may be found, monuments more durable than brass, not alone in their places, but scattered to all the corners of the earth.

From the Egyptians and the Assyrians we may skip, offending but the archæologist and the pedant, to the illuminators who threw their light on the Dark Ages. They changed their methods from carving to tracing, and their mediums from stone and papyrus to parchment and vellum.

But always these illustrations were single works of art, they were not reproduced, and only duplicated by copying by hand.

Beautiful as are the manuscripts, they play but a small and unimportant part in the history of illustration, when compared with the block books that follow them ; though

block printing is but a natural evolution from the stamp on the bricks of the Egyptian, or the painting on the vases of the Etruscan.

The block books, more often loose sheets, were printed from designs, picture and text, cut on the wood, in one piece, sometimes possibly engraved in metal. These blocks, being inked, and having sheets of paper placed on their inked surfaces, and the paper being rubbed, gave off an impression; as many blocks having to be cut as there were pages, and as many impressions having to be taken from each block as there were copies desired. The first of these illustrated blocks is the St. Christopher, 1423, though playing-cards, produced in the same way, were known much earlier.

It is only, however, with the invention of printing with movable types, practised by the Chinese centuries before we ever thought of it, that illustration, in its modern sense,

may be said to have been created; though printing with movable type is but the cutting up into separate letters of the pages of the block books. As soon as the artist was able to make his design upon a block of wood, have that engraved, and set up in the press with movable type, and print from it, a new art was discovered.

From the day of Gutenberg and Schœffer, illustration has, in the main, never changed; new methods have been employed, new processes for making the blocks have been perfected, but an illustration still continues to be a design on a wood block or metal plate, so cut, engraved, or etched as to produce a printing surface from which impressions may be taken, either in connection with type, when we call it letterpress or relief printing, or separate from the type, when it usually becomes intaglio or plate printing.

These methods have undergone, and

still are undergoing, incessant modifications, developments, and improvements ; and any one who wishes to take up illustration as a profession or a study, must learn the rudiments of the science, as well as master the great principles of art, if he wishes to succeed.

To-day, the methods of making the design are many, but the methods of reproducing it are virtually endless ; still one must try to learn something of the most important, and the more one understands the requirements of drawing for engraving and printing, the better will be the results obtained.

In the fifteenth century one had but to design the picture on the side of a plank, write in the text in reverse, cut everything else away, wet the block thoroughly, ink the face of it, lay damp paper over it, and rub or press the back of the sheet of paper till the ink came off on it, producing a print.

To-day one must understand drawing in all sorts of mediums, know something of the effect of photographing a drawing on to the wood block or metal plate, take at least an intelligent interest in engraving on wood and metal, understand process and lithography, and be prepared to struggle with that terrible monster, the modern steam-press, and its slave, the modern printer. To do this intelligently requires, not only a training in Art, but in the arts and sciences of engraving, reproduction, printing; and it is to these arts and sciences that I propose to call your attention.

An illustration—using the term in its artistic sense—is a design intended to give an artist's idea of an incident, episode, or topographical site, or it may be but a mere diagram referred to by a writer; and an illustrator is one who makes pictures or illustrations which illustrate or

explain his own text, or that of another writer.

An illustration really is a work of art, or rather it should be, which is explanatory; but, as a matter of fact, so too is all graphic art, explanatory of some story, sentiment, emotion, effect, or fact; and it would be very difficult indeed to point out when art is not illustrative.

As the word is used to-day, however, an illustration is a design made for the purpose of publication in book or magazine or paper. The fashion of making such designs to accompany lettering or type is, as I have shown, as old as the art of writing. The art of illustration, or rather the existence of illustration as a separate craft, and of illustrators as a distinct body of craftsmen, is virtually the growth of this century, more properly of the last sixty years since the invention of illustrated journalism.

Until the other day illustration had no place among the Fine Arts, and it has been said that, to win renown, an illustrator must achieve it in some other branch of art.

A few great artists of the past have made illustrations which will be prized for ever, and to-day these men are spoken of as illustrators; with Dürer and Holbein it was but one of the many forms of art in which they excelled, but they were not altogether given up to it.

To-day, however, illustration is the most living and vital of the Fine Arts, and among its followers are found the most able and eminent of contemporary artists.

It cannot, however, be said that this prominence which has been so suddenly thrust upon illustration is altogether due to its increase in artistic excellence; there are a number of other reasons.

Illustration has indeed reached technically,

on the part of artist, engraver, and printer, such a point of perfection, that it has at length forced critics and amateurs to give it the attention it has so long demanded.

More important reasons are the developments in reproduction and printing, started, and to a great extent carried on, merely to lessen the cost of production, but capable of giving better and truer results in the hands of intelligent craftsmen, than anything previously known.

Still, cheapness in reproduction by process, cheapness in the cost of printing, has enabled numbers of absolutely ignorant people (ignorant, that is, of art), but possessed of, they think, fine commercial instincts, to start illustrated papers and publish illustrated books. The result has been that an army of out-of-works in other fields of art, of immature or even utterly untrained students, escaping from the hard labour and

drudgery of an art school, ignorant even of the fact that great illustrators have always studied and worked before they have found a chance to start, have rushed into illustration. They are led blindly by the advice of the blind, they find even manuals on the subject written authoritatively by people who are either not artists, engravers, or printers, or, if they do pretend to practise any of these arts and crafts, are unknown and unheard of among the artists with whom they would rank themselves; and more wonderful still, the pupils of these blind leaders of the blind find publishers and printers ignorant enough to employ them; but not so ignorant as to pay more than the wage of an inferior servant for the worthless work supplied them.

There are many of these papers, magazines, and books being published to-day—eminent authors even contribute to their pages; but the illustrations they contain are

more primitive in their depth of ignorance than the work of the cave-dwellers, and would be equally valuable to future ages if it were not that they were mainly made up of an unintelligent cribbing, and stealing from photographs and other men's work.

Therefore, as a mass, instead of advancing, illustration is sinking lower and lower, owing to the action of those who pretend to be its patrons; at the present moment we find ourselves in a critical situation, good work crowded out by mediocrity—because mediocrity is cheaper — real artists lost sight of amid the crowd of squirming, struggling, advertising hacks. Any spark of originality is stamped out if possible. The mere attempt to say anything in one's own fashion is a crime, and on all sides the prayer for the extinction of the artist is heard; after him will go the process man as the commercial wood engraver has

vanished, and then—well, things will take a new start, good work will be done, and we may as well prepare for the time coming soon, when cheapness and nastiness, having struggled to the bitter end, will kill each other for want of something better.

Still, to-day, as good work is being done as ever there was; only cheapness has to shriek so loud, and advertise so large, to be seen at all, that people are deafened by the shrieking, and at times the best is but seen through a glass, darkly. Nevertheless, good art will as surely live as bad will perish. Let us then endeavour not only to learn what good work is, but how to do it. In the near future this will be absolutely necessary. When one sees the greatest artists in England drawing for penny papers, one realises that illustration is only apparently in a bad way, that really we are entering upon a second renaissance,

that this is but the dark moment before the dawn.

As a preliminary, and also a final, word to you, I would say, you must draw, draw, draw first, last, and all the time, and until you can draw, and draw well, you cannot illustrate.

The study, therefore, of the equipment of the illustrator should be our aim—what he must do before he can make good illustrations, then, how he is to make them.

LECTURE II.

THE EQUIPMENT OF THE ILLUSTRATOR.

THREE special qualifications are absolutely indispensable to the artist who desires to become an illustrator.

First, in order to make the least important illustration, the student must have a sound training in drawing, and if he has worked in colour so much the better, for in the near future colour work will play a very important part, even in the least costly form of books and papers.

Second, the student must thoroughly understand the use of various mediums, oil

(in monochrome at least), water colour, wash and body colour, pen and ink, chalk, etching, lithography, and he must have ability to express himself by almost all these methods. A knowledge, too, of the appearance the drawing will present after it has been engraved on wood or metal, processed, etched, or lithographed is necessary, because the illustrator will be held responsible for the results on the printed page; even though, as is usually the case, the fault is that of the engraver or printer, the public certainly will blame the artist alone. Therefore the editor or publisher will not employ him. The engraver will blame him if only to save his own business reputation. The printer will take away in every case many valuable qualities which the drawing possessed; but for the incompetency or inability of engraver and printer, the artist will be held accountable, and he must therefore understand

engraving and printing well enough to place the blame where it belongs, if not on his own shoulders.

To be able, then, to obtain good printed results, requires a knowledge of the reproductive arts, on the part of the illustrator, in theory at least, almost equal to the practical skill demanded in drawing.

Third, but most important of all, the ability to discover the vital or characteristic motive of an author's work, and so set it forth that the public may see it too. And the power to do this well is without doubt the real test of an illustrator.

Nothing is more difficult. The artist must please the author, therefore he should if possible know the writer personally ; at least he must be in sympathy with, and interested in his work, else a difference arises at once ; jealousy between author and artist, nearly always the fault of the author, who usually

resents the presence of the artist at all, is the cause of half the failures in illustration. No artist would think of dictating to an author the fashion in which the latter should write his story, but every author, and not a few editors, try to tell their own artist how it shall be illustrated. To a certain extent this is right, and it would be altogether right, if only the author and editor knew anything of art; but not infrequently they do not, and the less they know the more they dictate.

It may be safely said that not once in a hundred times is the author satisfied with his illustrations, especially if they are made to decorate a story. And even the designs intended to illustrate a descriptive article seldom please the writer, simply because the author has no comprehension of the limitations of graphic art.

Still, with descriptive articles, the case is

somewhat different. If the illustrator knows the author, he may undertake the journey, if to a foreign land, for example, with him, and a most delightful piece of collaboration may be the result. Or the author having visited the spot—sometimes he writes about it without having done so—may make out a list of subjects, and the artist may pick and choose from them, going to the place described to do so, with more or less satisfactory results. It is in this way that most of the better known magazines obtain their illustrated descriptive articles, but even by this method the artist and author usually disagree as to what should be drawn, the matter being looked at from two entirely different points of view. Or the artist may be asked to work up into drawings, from photographs, views of a place, or portraits of people never seen by him; some illustrators are very successful at this, work

which in most men's hands would be but the veriest drudgery and hack work, becoming interesting, attractive, and truly artistic.

But in most cases such drawings, even by the most skilful men, lack the go and life obtained when the work is done direct from nature, or at least without the photograph; and every true artist prefers nature to any photograph. There is nothing in the world more difficult to work from. One is confused by endless unimportant, unselected details; the point of view is never that which one would have selected, and the result, save in the rarest instances, is dubbed photographic even by the artless.

The most awful misfortune that may occur to an illustrator is to be compelled to use the photographs or sketches made by an author; here almost certain disaster awaits the artist. The author who cannot

draw but will sketch is terrible ; the author who can photograph is impossible. Both, they are sure, could make the illustrations if they but had the time ; and the artist who is compelled to illustrate them could write the story or do the description, he knows, if he but took the trouble. At least, that is the view they take of each other. The result is almost certain failure.

Such people should contribute solely to those journals where neither art nor literature find an abiding place, and the photograph, the amateur, and the personal paragraph are supreme.

Despite all these things, and many more, people struggle to become illustrators.

Another qualification for the illustrator is education ; no ignorant person may become a decent illustrator. He need not possess a university degree ; few do. But he must be able to understand a

vital or dramatic or pictorial point, and to arrive at this understanding may necessitate much study of literature at home and the visiting of many lands.

How can one illustrate a history of Napoleon, for example, without reading everything possible about his life that the author read, and without visiting the various countries in which his life was passed; in short, the conscientious illustrator goes through exactly the same process as the author, when collecting his materials. With this difference; the author is, in most cases, the final judge of his own work, and of his artist's efforts too. It is amazing that, considering that an illustrator has to submit to having his work judged by editors, rejected by authors, spoiled by engraving, injured by process, and ruined by printing—and all this may happen to good as well as bad

work—armies of young people are rushing into an over-crowded profession, and every art school, by teaching illustration, is encouraging them to do so.

Seeing, then, that such is the case, my object is to endeavour to give you a start in the right way if possible, at least in the way that, up to the present, the best work has been done.

That is, briefly, by drawing well, by working carefully, by expressing ideas plainly, and these desired results can only be obtained by those who regard illustration quite as seriously as any other branch of the Fine Arts; who know the good work that has been done in the past, and working on the right traditions, adapt their methods to the requirements of the present.

There are many more points to be noted, not least of which is that an illustrator must learn to keep his temper; from the

first drawing he submits, until he takes to painting in despair, his work will almost surely be misunderstood, his motives disbelieved. If he works in the style affected by his paper, that is, the style which the editor considers appeals to his subscribers —for papers are published for gain, not love —he will be asked by the critic why he does so. If he dares to be original, to follow his own inclinations, he will be told to efface himself and work like the rest. If he sketches he will be accused of shirking his work. If he elaborates he will be told he is ruining the proprietor.

His only consolation is that he, personally, seldom sees the editor, he prepares himself for the ordeal, and as the editor has to encounter a constant succession of irate, contrite, emphatic, and even furious artists, his life cannot be an alto-

gether happy one. Still he flourishes, and so does the illustrator.

But there are compensations. One may be asked to illustrate the works of a deceased author, one may treat the volume almost as one likes, and discuss the result with the editor. In this case the artist will almost certainly do his best. If he has the true illustrative spirit, he will study the period, the country, the manners, the costume; and, if let alone, to produce the work in his own way and at his leisure, he may create a masterpiece. This, however, depends entirely on the artist. It is in this way that the great illustrated works of the century have come into existence, without hurry, without worry, and, after all, the pleasure of work has been almost the only reward the artist has gained —and that seems to be enough to attract crowds—but I doubt if the business side of illustration means much to the student.

Better still, the artist may make a series of drawings, and then get a writer—an artist in words—one of those people who talk of impressionism in prose, or impasto in poetry, to turn out so many yards of copy. With what a grace he does so, and with what glee the artist pounces on his lines! If it were not for the ever-present editor the author's lot would be almost as bad as the illustrator's.

Best condition of all under which work may be produced is when the illustrator is his own author, when he writes his own story or does his own description; this requires that one shall be doubly gifted. Much may be learned by practice, but to be really great in this has as yet scarce been granted. But a few very talented artist-authors exist.

Equally good are those magazines that publish illustrations which are independent

works of art, of equal importance with the text.

Equally pleasant, too, is working for the weekly illustrated press—how long this form of publication will last is doubtful—making drawings which will be printed of a large size and show really the ability of the artist. It is pleasant, too, when the editor is an artist or man of sympathetic intelligence.

Another very important matter is the recognising of the fact that illustration at its best is equal in artistic rank with any other form of artistic expression; and that in every country save England illustrators rank with any other artists. Here one is forced to take to paint to gain admittance to the Royal Academy, though most of the distinguished members of that body won their reputations, and live on them, not by colour, but by the despised trade of illustrating. Critics—even the best of them—

will tell you that an illustrator is just a little lower than a painter. It is false if the art of the one is as good in quality as that of the other; else Rembrandt's etchings are inferior to his paintings, which is absurd.

But to-day many illustrators, in fact the mass, do not take themselves seriously. They squabble and haggle, they hurry and push, they are as much shopkeepers as your out-of-work painter. Others must have their stuff in every paper. Others' portraits and eventless bourgeois lives appear in every magazine, especially if the portrait is done for nothing and a few drawings are thrown in. Others crib the superficial qualities of the popular one of the moment, whether his game is eccentricity, mysticism, or primitiveness, three excellent dodges for hiding incapacity or want of training.

Not that there are no good men who do find their means of expression among the

primitives or who are really mystic, or truly grotesque, but for every one of these there is an army of frauds.

But all the while good work is being done. You may not see the real artist's name in letters a foot long on every hoarding, or his productions in every book that comes out. But once in a while he does an article, or even a drawing and then the mystics, the hacks, the primitives, and even some few of the public, buy it and treasure it up.

Therefore be serious, be earnest; and if you cannot be—if you think illustration but a stepping-stone to something better—leave it alone and tackle the something better. You may never succeed in that; you will certainly fail in illustration.

There is still another point, the financial one. Here illustration approaches architecture. Ruskin said somewhere, probably by accident, for it is so true, "Never give

your drawings away ; tear them up or keep them till some one wants to buy them." At the present time the profession is so crowded at the bottom that some shop-keeping editors have profited by this to reduce their prices almost to nothing—literally, by threatening and sweating, obtaining the work of mere students and people who are without money or brains, though they may be possessed of artistic ability, for next to nothing. In the case of painters they have said, " Send us a photo or sketch of your picture, and we will put it in ; and think of the advertisement."

What you who want to be illustrators must think of is that the painters who give their work to these people are fools. Would a novelist sell his story for nothing, or a poet part with his sonnet for a puff? And when these editors say they can get such an one's drawing for so much less, tell them to

get it, they will come after you on their knees later if you have anything in you, or their papers do not come to grief in the meantime.

Of course there can be no hard-and-fast rule about remuneration, but the labourer is worthy of what he can get. And it has only been within the last few years that the clever dodge of swindling the public by bad photos and worse art, of sweating artists by employing hacks and students, has been practised for the benefit of two people, grasping proprietors and still more grasping editors.

In connection with this matter, let me read you an extract from a letter recently received by me from a great living illustrator :—

"It has for too long been the case that the unsuccessful practitioner of other arts has turned to illustration of the baser sort as a last chance of earning a living. I dare

say he has a right to a living, but in these days of cheap and nasty illustrated journals, the low standard of work he brings, as a rule, to a branch of the artistic calling always considered by me a dignified and important branch, I do not believe in recognising or encouraging; and it certainly seems to me that a certain distinction should be made between men who take not the slightest artistic interest in their work and those who conscientiously endeavour to do it well and honestly.

"I have seen the abnormal growth and prosperity of cheap and nasty illustration, to my great regret. I suppose that so long as there is a large market for it, men will be found to supply it, and evidently this is the sort of thing finding favour to-day.

"The standard set up by the 'Cornhill' and 'Once a Week,' and by Menzel and Meissonier abroad, seems to be out of key

with the present taste. It must be that ignorance of good work is responsible"—ignorance, I may add, on the part of the artist and editor—in their case intentional or deplorable; in the case of the public it is but the blind being led by the blind.

Therefore, finally, try to do good work, and when you have done it demand to be well paid for it. If you have not the moral or financial backbone for this, go and chop wood—or paint.

LECTURE III.

METHODS OF DRAWING FOR REPRODUCTION IN LINE.

THERE is no doubt that to-day the most popular method of designing the decoration of a book (I use the word book, but I would refer to magazines and papers as well) is by means of line work. By the use of what materials these lines are to be made; how they are to be placed upon paper or metal that they may reproduce and print best; and the way in which that reproduction and printing is done, will be the subject of this and subsequent lectures.

The line has always been employed, not

only by artists, but by the artless, to express form ; the only difference being that the artist uses a vital line full of meaning, the artless a meaningless line without vitality. But often the work of the two approaches so closely that at times it can scarcely be distinguished ; however, that is a critical, and not a technical, matter.

I do not propose to give you a history of the methods employed to obtain lines, in fact, a history of drawing. There are many such books, and as for drawing you study that every day, in the life and antique, and I hope outside as well. But it is to line work and its reproduction in the present, that I wish to call your attention.

The most generally adopted method of making a line drawing for illustration to-day is with a pen and ink, upon white paper. There are but four tools, and a surface to work on required. The tools

are simple and cheap enough, the ability to use them rightly and well is rare enough, even though every book is decorated and all newspapers are to be illustrated in the near future.

First, as to the pens: there is, as you know, an endless variety of them, all the best. Some are made specially for the artist, and of these the most generally used is Gillott's 659 (all colour-men keep them), a barrel pen, which fits a special handle; when one has mastered this pen, unsympathetic, hard and scratchy at first, and each pen, by the way, has to be broken in, one finds that the most amazing variety of line can be obtained with it, from the most delicate to the boldest. The beginner thinks because it is a small tool that only small work can be done with it; experience and practice will prove to him that it is a most sensitive implement, and he will learn to take care of

his pens, keeping them on the holder in a box which they just fit, for these pens improve with age, getting better and better until they are almost like living things, and then they break.

From this most delicate and sensitive of pens I would call your attention to the hardest and most unsympathetic, the glass pen, or stylus; this is a useful tool, but while the Gillott is to be used in work demanding freedom of touch and consequent variety of line, the glass pen is only to be used — unless you like it — when lines of uniform thickness are wanted. It carries a large quantity of ink, and, as lines can be made in any direction with it, it is more like an etching needle than anything else I know of; and if these pens were really well made in metal and not of glass, and of different sizes and would give lines really varying in width, they would be much used; as it is

they are very unreliable, easily broken, and expensive. I find that they are liable to tear up the paper, or refuse to work in an annoying fashion. It has been pointed out that they are most useful for tracing, and also that if they clog up they may be easily cleaned by dipping in water and wiping off with a dry rag. I may say that they should be thoroughly wiped, and in fact all pens should, after they are cleaned, or the ink is changed, as you may not only spoil your pen, but your ink as well, by dipping your pen without cleaning, either in water or another sort of ink, as one ink may contain some chemical matter which absolutely ruins another. Some rubber should be placed in the bottom of your inkstand, for if the glass pen drops heavily it will be broken ; but not paper, unless you wish to spend all your time wiping pulp off your pen. The best of these pens I have found

are those sold by Roberson, 99, Long Acre. Between these two extremes, of flexibility in the Gillott, and firmness in the stylus, are to be found all sorts and conditions of pens. And I may say that you may never like, and you need never use, any special kind, but instead your favourite writing pen; if you like that best, it is the tool for you, use it. There are, however, some other sorts of pens to which I may call your attention. If only some fountain-pen maker had the sense to invent a pen for artists, he would make his fortune. But fountain-pens at present are unreliable in action and unsuitable for use with drawing inks, so they are out of the question altogether for us.

A very good tool is the quill pen. Much variety can be obtained with it, especially in broad dragged work. I use technical terms because you understand them, I

hope, and it is only the technical side of illustration I propose to touch. With the back of this pen you can get rich and broken effects, especially when it is half dry. The quill, the stylus, and the reed, were the tools for pen-drawing used by the old men. You can buy quill pens anywhere. Reed pens you had better make for yourselves; go to a reed bed in the early summer, cut off the top of the stalk, strip off the outer covering, and cut the inner canes into sections between the joints, cut your pen and finish it at once, or rather a lot of them, for when the reed is dry it is liable to split and is not half so flexible.

Pen work with reed pens really should only be done when they are fresh; but at all times they glide easily over the paper, though any pen will do this after you have mastered it. Reed pens also

make a broad fat line and hold lots of colour.

Another pen which is useful sometimes is Perry's Auto-Stylo, or marking pen, from Perry's, Holborn Viaduct; lines half an inch broad or as fine as a hair can be made with it, and I have at times used it as a brush; it is a most amusing instrument.

Brandauer's round pointed pens are used by some. But the pen you should use is the pen you can use; that is, the pen with which you can get the most variety of line. Or you may use half a dozen, from the finest Gillott to the biggest reed. It is not the pen, but the person who uses it. Sometimes it is not a bad thing to remember this.

Many artists are now taking up the use of the brush; most probably it was used by the old men, certainly the men of the last generation employed it, as it was much easier to work on the wood block with a

brush than a pen. And we know that the Japanese pen is a brush. The advantages are flexibility of line, amount of colour it will hold, freedom from scratchiness, and absolute freedom of movement in every direction—the greatest advantage of all—the line itself is fuller and fatter, more pleasing. The drawbacks, well, there scarcely are any, save that to use either brush or pen well is about as difficult as to play the violin; that is all.

The commonest brush for line work is that used by lithographers, a sable rigger which they cut to a fine point, removing the outside hairs; but almost any good pointed brush will do. Very good indeed are the genuine Japanese brushes, the small thin ones are the best—in black handles—you can pick these up sometimes at the Japanese dealers, but I imagine any artist's colourman would send to Japan for them if there

was a sufficient demand; I have got them in quantities for a penny each.

There are various mechanical tint tools like air brushes in use; they are of little importance to the artist, and if you want a dotted tint you can get it by dipping a tooth-brush in ink and rubbing the inked hairs with a match stick, when the ink will be splattered in dots and blots all over the paper. You may lay a piece of paper on the parts you wish to keep white, and paint or scratch out spots that are too dark, or you may impress your inked thumb or pieces of inked silk on the paper, or indulge in any trick of this sort that amuses you and gives the desired result.

Ink is probably the most important material employed in pen-drawing. It must be good, that is, it must be black—it should not shine—it must never settle, it must flow easily, dry quickly, and never clog the pen.

There are many varieties of good ink, but the only ink I know of to-day, which gives me exactly what I want and is obtainable of the same quality all over the world, all over Europe at any rate—and this is an enormous advantage—is Bourgeois' Encre de Chine Liquide. During several years it has never varied, and that is more than I can say of any other. It is indelible, a desirable quality in ordinary use. The only bad thing about it is the vile, ill-balanced bottle and the rotten cork, which always breaks and often gets you into a mess. The best bottle I have ever seen is that in which Higgins' American drawing ink comes.

This is not a talk on inks, but a hint as to what I have found the most satisfactory and reliable—if you do not like this one, every colourman makes an ink or sells some one else's; try it. Among the best are Higgins', Winsor and Newton's, New-

man's, Rowney's, Reeve's, Stevens' ebony stain.

Freshly-ground Indian ink is the best of all, but to grind up your ink is too much trouble, too tedious and too unreliable to be worth the bother it entails. Indian ink, under certain conditions, shines and glitters, and this is not pleasant, and hinders photography. Lamp black and ivory black are quite dead and free from shine, but they are not fixed colours. They may be easily fixed with gall or gum.

Writing inks usually, if not always, have blue in them; therefore they will not photograph, they run about, blot, and generally misbehave. Sometimes one gets good black writing-ink; when you do get it, use it. But Indian or Chinese ink is best, and as I know of no better preparation at present, I commend Bourgeois' Encre de Chine Liquide; it comes in the tall bottle

with the diagonal black and yellow dragon on the label. Coloured inks, save blue, may be used, but unless the illustration is to be printed in that colour the result is almost always disappointing; delicate washes of brown, for instance, becoming staring solid blacks.

In sketching out of doors with ink, a method I most strongly recommend, pour your ink, or rather enough of it, into an exciseman's ink-bottle, one of those unspillable affairs which you can cork up—though, save to keep the dust out of them, there is no occasion to do so—and attach it by a sort of watch-guard to your button-hole, putting the bottle in your pocket. Messrs. Newman, 24, Soho Square, have fixed up some of these bottles for me, and they will, I have no doubt, supply them.

The general way with artists is to put their uncorked ink-bottle in their waistcoat

pocket; if they should happen to lean over, on straightening up the ink is found upon their trousers or frocks, or sketch-block—in the male a result most conducive to strong language, especially if the trousers are spoiled; the drawing doesn't so much matter.

Also provide yourself with a hardish lead pencil H., or, better, a blue one, as the blue doesn't photograph, but it's hard to get off the paper, and don't look well; also some lithographic crayon or Wolff's carbon pencils; a good rubber, pure rubber or bread for the pencil, an ink rubber or eraser for the ink; some Chinese white and gum for patching up things; and for use in the house, an old razor to scratch out, and out of doors a folding eraser, such as Mr. Percy Young, of Gower Street, supplies: get the folding ones, as the others are not only less convenient but rather dangerous to carry.

Lastly, the paper: the photo-engraver will tell you Bristol board. Certainly, a simple open line drawing in pure black upon pure white smooth paper, very little reduced, should give a truer result than anything else. But what it does really is to give engraver and printer less trouble, and that is what most of them want; in the majority of cases it is best to aid them, otherwise your work is spoiled. Therefore, if you like Bristol board, use it, and use it whether you like it or no, if you are doing work for ordinary printing. But if your illustration is to be well engraved and well printed, use what paper you like. But to get satisfactory results from rough paper requires much experience, and you had better arrive at that experience by doing simple things, in a fashion which will engrave well; go to printing offices and engravers' shops, find out what is

necessary, try to work in harmony with the engraver and printer, and they will do their best for you : most of them care about their work, and are genuinely sorry if they cannot make yours look well, so work with them, and they will work with you.

As to the Bristol board, get the best ; if the drawing is large and has to be rolled up, the thin, if not the thicker quality ; it is known as so many sheets, two, four, six sheets the heaviest. You must get the best quality, otherwise there is a risk of bad spongy places in it, which may almost ruin the drawing, at any rate its appearance, and necessitate patching up which is delaying and annoying. Bristol boards, too, may always be made up into books or blocks. Some boards are now mounted so that they can be stripped off the mount when the drawing is finished, among them are Turnbull's Art Tablets ;

while the best surface of all, which is like marble or ivory to work on, a surface which may be rubbed or scratched without harm, is the old mounted thin Whatman or Bank Note paper prepared by Messrs. Roberson and Newman. These thin papers are mounted on heavy boards and kept under hydraulic pressure for weeks, until the whole becomes a solid mass. This mounted Whatman, when well made, is the best paper in the world; it is also the most expensive. Thin foreign correspondence paper may also be used, putting it over the sketch like tracing paper, and when the drawing is finished mounting it on card board; tracing paper may also be mounted. One scheme not much in vogue yet is to draw upon black paper with Chinese white, making the drawing in white lines instead of black. Any sort of writing paper, or all varieties of rough or smooth

Whatman are useful. Of course in drawing on rough paper you are bound to get a rough broken result in printing; however, if you know what you are after, no one will object but the engraver. In fact any sort of white paper may be used for pen and ink work; only, the smooth gives the most certain results. There are also many grained papers which give a tint; that is, a mechanical tint is printed on the paper, lights are scratched in it, blacks are put in with a pen or brush, another tint in pencil or chalk is added, and many tricks may be played, one usually only a little less satisfactory than the other. These papers are made by Gillott, of Paris, and Anger and Goeschl, of Vienna, and generally supplied by colourmen; they are called Gillott or scratch papers.

There are also various clay or chalk surfaced papers which, after being drawn

upon, may be scratched to get light in the design. The results are, however, rarely satisfactory. In fact, it is best to use a good hand-made white paper; you will be surer of your result, and that is what you are working for.

Having given you a list of the necessary materials, I will try to tell you how you should use them. I shall not try to compel you to make short lines or long lines, black blots or white lines: work in your own fashion, only that must be good, and capable of being engraved and printed. I shall not tell you how to draw, but how to draw so that your work may reproduce and print best. You may commence your drawing in either one of two ways, by making a pencil sketch on your sheet of paper which is to be sent to the engraver, preferably in blue pencil which does not photograph, and in as few lines

as possible; or by commencing straight away at your final work, in ink; if it is a drawing from nature, I do not see why you should not do this, for it will teach you care in selecting your lines and putting them down. And as you have an ink eraser in metal and rubber you should be able to remove those which are wrong.

But if your design is more in the nature of a composition with elaborate figures, or figures in action, it will be almost impossible to do this. True, most interesting sketches may be made, and should be made and must be made direct from nature. But your final design will in nearly every case have to be built up from these. Therefore, unless you can "see the whole thing in your head" before you put it on paper, so clearly that you only want a model to keep you right, I think you had better make sketch after sketch, and then

transfer the best to the sheet on which it is to be completed by putting transfer paper under the sketch and tracing paper over it. Probably you will pencil on the final drawing, but do as little as you can, for the camera, when the drawing comes to be photographed, pays just as much attention to smudges, finger marks, pencil lines, and meaningless accidents as it does to those portions which are brim full of meaning. By neglecting these matters all artists give engravers much trouble, and unless the engraver is an artist too he not infrequently bestows great pains on the reproduction of an accidental line, even though in order to do so he ruins the entire drawing. And again, in all cheap work your drawing is placed with a number of others and no special attention is paid to it, and it reproduces somehow, or don't, which is much the same thing. But in case

of failure you will be blamed by the public.

The first thing to remember in putting your drawing on the paper is the space it is to fill; if it is to be a full page, it must be made the size of that page or twice as large; at any rate it must have some definite relation to it. In the case of half a page, it is only necessary that the top or bottom of the drawing should fit across the printed matter; still, the drawing should not be made so high that it will not fit in, or so narrow as to be ineffective, but if you will look at any book or magazine you will see what I mean.

Again, for cheap rapid work as little cross-hatching as possible should be indulged in, for all cross-hatched lozenges become smaller lozenges in reduction, and the smaller they are the easier it is for them to fill up and clog with ink. Draw

your shadows with parallel lines whenever you can without being mechanical; they do not fill up, but engrave and print well.

After several years' experience I am quite unable to say how much or how little a drawing should be reduced, for there is no reason why it should be drawn the same size it is to be engraved, save that the nearer it is the same size, the nearer the result should be to the original; if the reduction is to be great, it is easier to make the design larger and have it mechanically reduced. The excessive reduction of a drawing tends to make the lines run together into a black mass sometimes, and the enlargement of a drawing—this, too, may be done—makes the lines at times look crude and clumsy. But it is impossible to foretell results in any two cases. Only there is one matter. a good drawing in line will, with good engraving

and printing, look well, whether the artist knew anything of process or not. But there are some things to be observed, if certain results are wished for.

In simple cheap work the ink should be uniformly black, for the engraved block will be put with type, and inked with the same amount and strength of colour all over; therefore, in order to get variety, distance, effect, you must use lines of different widths, placed at varying distances apart, not of different degrees of colour. In theory at least, then, the foreground should be drawn with a firm bold line, the middle distance with a medium-sized line, the lines themselves closer together, and the extreme distance with a thin line. But there is no rule, only get variety in your line and this will produce variety and interest in the engraved result.

If you make your drawings much larger

than they are to be reproduced, you will often be greatly surprised at the change in their appearance. Greys will, by filling up, become darker, and lights lighter owing to the concentration around them of masses of colour; that is, blacks become blacker, and whites whiter in reproduction. But do remember that though the drawings by Boyd Houghton, Millais, F. Walker and Pinwell were made the size you see them, on the wood, in the books of twenty-five years ago, the drawings made to-day by Abbey, for example, are four or five times as large as the published engravings, and are not, in the originals, filled with that microscopic work which appears in the reproductions. But do not make crude lines under the impression that they will ever be anything but crude. Try to make a beautiful drawing, a beautiful line—unless you can do this you will never get a beautiful reproduction;

and once you have learned to draw, study the best books and the best magazines, always remembering that drawings to-day are made much larger, as a rule, than you see them on the printed page.

Again, in reproduction you will often find that some parts of the same drawing change more than others; some places, for example, become too weak, others too strong. I cannot explain this, but you will find that it does happen. At times it may be because the photograph is bad, or the etching is rotten, but even with good photography and etching the final result is often disappointing.

In pen work you may run the gamut from solid blacks to the most delicate grey line. Do not try to always, but select a colour scheme which is restrained and appropriate to every drawing.

Solid black will reproduce best because

it is a solid mass, excepting in cheap rapid printing, when solid blacks either get too much or too little ink. A number of black lines close together will reproduce almost equally well, because in engraving and printing these lines support the paper and do not take up too much ink. A single thin line, on the contrary, always thickens in the engraving, and often prints badly because in the printing press the ink and paper bear down too heavily upon it and it receives too much ink and thickens up.

I have recommended you to use only black ink and white paper; before you have worked much you will try experiments, I am sure, in greying ink, putting water with it, and leaving pencil marks, or adding lines with lithographic chalk, or crayon; but you will find out the moment the drawing is printed that everything

comes quite black, and if you have made your distance in broad grey lines it will possibly ruin your whole scheme. Greys may be obtained by engraving the blocks by hand, rouletting, or a number of other ways which I shall explain. Line drawings may also be made altogether in pencil, on rough paper, in chalk or crayon, reinforced, if necessary, with a blot of ink, or a wash, or a line with a pen here and there; but for line work with these materials you must employ a grained paper in order to get a proper mechanical direct reproduction of the work. Bristol boards must not be used. Sometimes these combinations of pen and pencil work are excellent; but they must harmonise, otherwise the result is unpleasant.

Some idea of the effect your drawing will present when engraved may be obtained by the use of a diminishing

glass ; and, *vice versâ*, you might study some of the engravings in the books and magazines around you with a magnifying glass. Drawings are made larger than they are to be reproduced to-day, because it is easier for most people to draw on a large scale than a small.

Corrections in line drawings with pen should be made either with an ink eraser, a razor, the razor knife, or by painting over the place with Chinese white, or, if it be large, by pasting down a bit of paper on it. This is the most usual way ; if the paper is thin and the edges well joined, it is the best. Or you may cut a hole from the back and let in a bit of paper, paring down the edges, or scraping them down ; but be careful about the edges, because they make a nasty line when the drawing is photographed. In pencil, crayon, or charcoal work, remove

imperfections in the ordinary way with a bit of rubber. You will not, of course, lose your head and elaborate a pen drawing, any more than you would a chalk or charcoal drawing or etching. You will select your lines with the utmost care, put them down with the greatest intelligence, and the more care and intelligence you exercise the better will be your illustrations; however, this is what you are trying to do every time you make a drawing in line from life or the antique, and I will not bore you by repeating what you hear every day in your ordinary school work, nor will I do more than remind you how careful you must be in your composition, in your arrangement of lines, in your placing of blacks, in making up your picture; only exercise the judgment necessary to compose any other work of art.

Your drawings should be works of art; be proud of them; but also regard them as

a means to an end, and, as I have said, for cheap and rapid printing draw on smooth white paper with good black ink, and do not use big solid blacks, or single thin lines. Keep your work as open as you are able, and do not have it reduced. That is, draw as near the size it is to appear (if you can find that out) as possible. For the best engraving and printing, draw as you like. Anything to-day can be photographed and engraved; the great difficulty is in the printing. Remember that if you do not put distinction and character into your work, the engraver and printer cannot. They will take much away in any case.

As you are working for an editor, you will have to please him. Do so if you can without hurting your work and your own standard of right and wrong.

But always work in your own way, if that is at all possible for reproduction and

printing, if it is not, you will have to change your methods. For you are working for a definite purpose, illustration; therefore your work must engrave and print.

If you wish to succeed you must see all the illustration you can, you must talk to editors and illustrators, and you must go down into the printing office and the engraver's shop.

You must learn your trade, for if you have not passed through the drudgery of the apprentice, you will never become a master of your craft.

LECTURE IV.

THE REPRODUCTION OF LINE DRAWINGS.

AS illustrators, or would-be illustrators, your work is not at an end with the completion of your drawings; you must look after them while they are being engraved, and you should see them through the press. From the time you are given a commission to illustrate a subject until the printed result is in the hands of the public, the work in all its stages should be the object of your untiring attention. It is true that at present the fact that you take an interest in your profession will be counted against you in some quarters, for should you

happen—as is not unlikely—to know more of drawing, engraving, and printing than the art editor, the engraver, or the printer, your suggestions will not be received with enthusiasm, nor your criticisms with delight. Suggestions mean changes, and criticism means objections to the routine way of doing things. Then you may not feel a great interest in the scientific side of your work, yet chemistry plays an important part in illustration. The mechanical reproduction of drawings is based entirely on chemical action, and you must know something of this matter if you would get good results.

But let us consider the whole subject. Drawings in line were originally, in the fifteenth century, reproduced by wood cutting;[1] that is to say, the drawing was

[1] Of course I shall refer to metal engraving in another lecture.

made in line with pen, point, or brush on the side of a plank, and all those portions of the block which were not drawn upon were cut away with knives and chisels, the design only remaining in relief; this relief was dabbed over with ink or paint, and a piece of damp paper was laid on it. The back of this paper was rubbed, burnished, or pressed on to the inked surface of the block and took up the ink from it; on removing the paper an impression in reverse of the inked block was found on the under side of it. And this was the method, with improvements, employed in printing from type, for three hundred years.

About the beginning of this century the design began to be drawn upon the end of a block of box-wood—a cross section of it—and the parts left blank were cut away with gravers, tools used by en-

gravers in metal, or else lines were engraved on the blackened surface of the block, which printed as whites in the black; the grain of the cross section of box-wood was firmer and finer, and with the gravers more delicate lines could be engraved and more true results obtained; and at the same time continual improvements were being made in the presses, steam being substituted for hand power, and the manufacture of paper and ink totally revolutionised.

These methods were employed until about 1865, when, instead of the drawings being made by the artists on the block of wood, they began to be drawn on paper in line, and then photographed on to the wood. This was a great improvement, because the artist could now make his designs of any size he wished and have them photographed down to the required dimensions and reversed for him: the mere

reversing in many cases was both tedious and uninteresting.[1]

The final step which brings us to the present, though not by any means, I am sure, to the end of the chapter, is the superseding of the woodcutter or wood engraver in line, by the mechanical engraver in metal or gelatine.

Now you may do your drawings, if you wish, in line with a pencil or brush upon the prepared piece of box-wood, and the engraver may cut away all those portions of the wood-block which you have not touched, remembering always that though you draw freely he must engrave laboriously, and the more free your drawing becomes, the more complicated must his engraving be. So when you make a sketchy drawing on wood, none but the

[1] If the drawing is a portrait of a place, it must be reversed on the wood or metal in order that the print may appear as the original does in nature.

most accomplished engraver can retain that look of freedom and sketchiness; if the lines of the drawing become really complicated, in cross hatching, for example, he cannot follow them, he must suggest them. Hence, unless the engraver really loves this sort of work, it is but drudgery, and the better the reproduction the more skilled labour wasted.

Now photography has changed all this. A photograph of the drawing, of the required size it is to appear on the printed page, is taken. The drawing may be enlarged or reduced to this size, and the negative thus obtained is placed in reverse in a photographic printing frame, in contact with a sensitised zinc plate, coated with a thin film either of albumen or bitumen, or it may be that a gelatine film is the material used for printing on. In the first method the albumen coated

piece of zinc is removed from the printing frame as soon as the photographic print has been made; it is then coated with ink and placed in water, the albumen and ink upon it adhere to those parts of the zinc which have been exposed to light, and may be washed off the other parts, thus leaving the picture on the zinc in ink. By the bitumen process the picture is printed in the same way: the plate is placed in a bath of turpentine, the picture appears on the zinc, and the bitumen dissolves off the other parts.

If these two prints are now covered with powdered rosin, gum, and ink, they may be placed in a bath of nitric acid and water, and the exposed parts bitten or etched away. This is a most interesting and delicate process, and success depends in good work more upon the skill and artistic intelligence of the etcher than the chemicals used. The

object is to remove all the whites as in wood engraving, and leave the blacks. After the zinc has been bitten a short time it is taken out of the bath, again covered with gum, resin, and ink to protect it from the acid, heated, when the protecting mass melts and runs down the sides of the bitten lines and protects them also; this process is continued until the block is sufficiently etched. When the exposed parts are all eaten away the picture appears in relief. This occupies a few hours, maybe but an hour or less. When completed, the zinc picture is mounted upon a piece of wood, to make it the same height as the type, placed in a printing press and copies are made of it, or from electrotypes or stereotypes, at the rate of from twenty to 20,000 an hour. This is, I hope, an intelligible outline of the photo-engraving process;[1] every mechanical engraver has some variation which is his

[1] See Preface.

carefully guarded secret. The blocks may be of zinc or copper or other metal, and all sorts of chemicals are used. But I cannot too strongly impress upon you that good work in mechanical engraving is only to be obtained by artistic workmen; still, remarkable results are to be seen all about, even in the cheapest prints. But the very best process engravings are produced only by men who are artists and care for each block. In the case of the best engravers they will know better than you which process to use, and there is no more necessity for you to try to tell a mechanical engraver how the work is to be done, than for you to tell a wood engraver what tools he shall work with. Bad drawings may look better by one process than another, and good illustrations may be spoiled more by one method than another. But every intelligent engraver will try again and again until he gets the best result he can.

The gelatine process consists in printing the picture on a sensitised film of gelatine. Now if this gelatine is soaked in water the parts representing the whites swell, and the darks, really the picture, remain as they were, as the light has rendered them insensible to water; from this swelled gelatine mould a cast in plaster of Paris can be taken, from this a wax mould is made, and finally an electrotype. The process is only used, I believe, by one firm; the results are good, but no better than the others.

Let us consider for a moment what are the advantages and disadvantages of mechanical reproduction. The first advantage is rapidity of production—a facsimile wood engraving may take weeks to produce, a mechanical engraving takes a day or so; this is not an artistic but a commercial gain. The wood engraving loses, the more intricate and complicated and close the details

become; the mechanical or process engraving not infrequently gains.

The wood engraver may make mistakes in cutting the lines in the wood block, but if the lines are properly put down, the camera and the process engraver should not; and if they do, much less time is lost and labour wasted than with wood engravings.

Mechanical engraving is a much less costly method. These are not any of them very artistic reasons, but they count with publishers, and they count with you. But the great artistic advantage is that the artist may make his drawing of any size he wishes; it is not cut to pieces but preserved, and if it is properly drawn, as I have explained to you, it should produce in complicated work a more faithful result. In simple line work it is almost impossible to tell a wood engraving from a process block.

The drawbacks are that the line is some-

times too faithfully copied—that the engraving is shallow, and that the wood yields a richer, fatter effect than any metal, mechanical block.

These are artistic drawbacks, but they may all be overcome by the artist. The line, if good, cannot be too faithfully copied; the engraving, if shallow, can be made deeper, engraved anew by the wood engraver. The fat line so much prized was made with a brush, and, as I have said, brush work reproduces perfectly. And in the majority of cases the original wood or process blocks are never printed from, but casts of them called stereotypes or electrotypes are used; therefore the fat line of the wood is more or less the product of the imagination. I do not mean to say the original wood or metal block will not give a richer impression than any cast from it, but I do say it is only in the case of proofs that the original is used.

If a pencil or other drawing in line is to be reproduced, in which the varying colour of the pencil mark is to be retained, its greyness for example, or if the pen line is very delicate, or there are many single unsupported lines in the drawing, another method must be employed.

A microscopically ruled glass screen, ruled with fine lines made with a diamond, is placed in the camera in front of the glass plate on which the picture is to be photographed. There are various ways in which this is done, with the object of breaking up into line the tones which would otherwise print perfectly black, or, of supporting those weak lines which would print too heavily. This negative thus obtained is printed on to the zinc or copper plate, is then etched much as in the case of the simple line block. This process, usually called half-tone, was invented for reproducing wash, but is much used

now for line, especially when the dots or line of the screen are cut away by the wood engraver in the whites. The photo engraver is now endeavouring so to shift or adjust his screen that the dots will come only where they are wanted, and some most interesting results have been obtained. When I am describing the reproduction of wash drawings, I shall return to this subject.

Spaces of tint on line drawings can be and almost always are obtained by the use of what is known as shading mediums; that is, pieces of gelatine or copper with lines or dots engraved in them are filled with printer's ink, and these lines or dots are transferred by the engraver to the parts of the picture on the zinc plate where they are wanted before the plate is etched.

There are many ways in which the artist can get the same effect by inking bits of silk and pressing them on the drawing, by inking

his thumb, or by drawing with a pencil or chalk or even pen over a rough book-cover, the only object is to get a bit of tone in a line drawing : in cheap work it is often very effective, in the best work it is usually out of place. All the artist need do is indicate the spot, or the outlines of the parts where the tint is wanted, by a blue pencil. If the engraver knows how the block is to be printed he will use the tint that will print best. They are all useful, but not very sympathetic.

Photo-Lithography and kindred methods are either of little importance or will be referred to under Lithography.

Finally, if the lines are too black or too strong they can be cut away or thinned, or darks opened up by the engraver, just as on a wood block; or a little wheel in a handle called a roulette may be run over parts of the engraving which are too heavy—the teeth of the wheel break the lines into dots and lighten them

LECTURE V.

THE MAKING OF WASH DRAWINGS AND THEIR REPRODUCTION BY MECHANICAL PROCESS.

WHEN I speak of wash drawings, I would really refer to all painting or drawing, in colour or monochrome, in tone, as distinguished from work in line, which was the subject of my last lecture.

Many persons do not like line work, never master it, and are insensible to its beauty when they see it. For these there is another method of expression, although, I cannot repeat too often, an illustrator should be able to work in more ways than one. One may make one's illustration in colour in oil, in

gouache, in body colour, in wash; in fact paint a picture in the usual way, though, even with the best and most careful methods of reproduction, it will be almost invariably found that in the various stages of photographing, etching and printing, very much, if not all, the charm has disappeared, even though the result be printed in colour, for up to the present no colour can be perfectly reproduced, or rendered into black and white, even by the best engraver in the world. And no colour can be reproduced except by the artist himself. A few men like Detaille, De Neuville, and Lynch have, I believe, invented a special colour scheme for the requirements of colour reproduction, and some of the engravings made from their pictures by Messrs. Boussod, Valladon & Co. are very wonderful; but in the best examples I imagine there is an enormous amount of careful touching up and going over by hand,

which places these reproductions in the category of proofs rather than of prints. Certainly there is a vast difference between them and the colour work usually seen in the same firm's commercial publications, good as they are, and there is a yawning gulf between these and the colour print we have with us always. Therefore, if you wish to work in oil I would suggest that you work in monochrome, and further I would advise you to make your designs in simple black and white —that is if the reproduction is to be printed with black ink; for the nearer your original is to the colour in which it is to be printed, the nearer will the engraver and printer be able to approach it. I would also suggest that perfectly dead colours should be used, because varnish or any sort of glaze, shine or glitter, will tell in the photograph, and even the most careful engravers are rather

given to reproducing the photographic copy than the original, even though the latter be at their side.

One method, that has been successful lately, is mixing oil colour with turpentine until it flows like water, and then working on paper; this reproduces most excellently, the only drawback being that the colour rubs off easily.

Body colour and gouache are much used; the only thing to be remembered is that you should keep to the same colours and the same method of work all the way through each drawing. It is very interesting to combine body colour with wash; often in the original design the combination is most pleasing, but the camera does not approve of it, and frequently plays the most unexpected tricks with these combinations. Therefore, either stick to body colour, lamp

black, ivory black and white,[1] or pure wash; in the latter case there is nothing which photographs so well as charcoal grey, made by Newman & Co. The most delicate washes reproduce beautifully. It is rather hard to manage, but once you can manage it, it is almost perfect. It is best for work in a very light key, in the extreme darks it is liable to get heavy and sombre and gritty; and if you want a positive black it is well to put it in with ink or some stronger black, even at the risk of knocking things rather out of tone. The only objection to charcoal grey is that it is rather difficult to work over it. Still, in illustration in wash you will always get a cleaner, sharper effect by doing your drawing at once, getting your effect right with the first wash, than by any amount of tinkering at it.

[1] Winsor & Newton and Reeves have lately been experimenting in this way, and their Albanine and Process black are well spoken of by photo engravers.

In this pure wash work you should be careful, very careful, not to let any meaningless pencil lines show through, as they always photograph, cannot be taken out, and at times spoil the whole effect; in fact, imperfections in wash drawings always reproduce more perfectly than the perfections themselves, and it is well to keep your paper reasonably clean, to avoid smudging, blots and lines, or otherwise you will be disappointed in the result. It is often very effective in an original drawing to put in a lot of colour, but it nearly always comes out wrongly in the reproduction. On the other hand, although body colour often comes badly with wash, if you work over or into either your wash or body colour with pen, chalk, or pencil of the same substance as the wash, the result is harmonious often and excellent. I mean, if you make a drawing in wash with Indian ink and work on it with liquid Indian ink in a pen, the result will

be right. If you touch up charcoal grey with charcoal, the wash and line unite — these things, however, you will soon learn by experience, even though that experience is gained in a rather painful manner. Still, at present the better magazines and papers are not a practising ground for students, as they were some time ago, and you must be able to do good work before you can expect any intelligent editor to print it.

Drawings or paintings—in fact all work in tone is reproduced mechanically by what is known as the half-tone process, which I referred to briefly in my last lecture.

The drawing is photographed, but in front of the sensitised glass, a microscopically ruled screen is placed to break up this tone into dots or lines, really to get the same effect as the wood engraver obtains with his dots and lines. Otherwise, the tones being flat, or even if they are gradated, would print as

a black mass ; but these screens break up the masses into little squares, which receive the printing ink on their faces, and the colour or original effect of the picture is thus preserved. It is rather difficult to explain this, but the screen produces white lines in the darks and dark lines in the whites ; you can see them by looking at any block. Afterwards, the process is exactly the same as for line drawings. This reproduction of wash work is very uncertain ; good effects are obtained, about as often as failures. The delicate tones are not infrequently altogether lost. There are no positive blacks or whites, but a uniform grey tint covers the entire block, in which all delicacy is often hidden. Therefore, to get a good effect, when printed, the drawing should be simply made, that is if it is for cheap engraving and rapid printing ; but if for the best books and magazines, wood engravers may be em-

ployed to remedy the imperfections of the photograph and the mistakes of the etcher. That is, whites may be cut, blacks toned down, lines thinned, or large spaces on the block may be left for the engraver to work upon : most remarkable results may be seen in the better American magazines.

There are many qualities in a drawing which that senseless machine, the camera, will never reproduce. There are also a few points which it is very difficult (in tone work) for an engraver to render, but they may both combine and obtain most interesting effects.

For instance, it is very difficult to give in a wood engraving the look of paint on canvas, without losing much of the picture itself, for if the wood engraver begins to try to imitate texture he not infrequently loses the subject. The mechanical process seems to do this very easily, especially if the brush marks on the canvas are at all promi-

nent. But the delicacy is frequently lost; so, too, are the strong blacks, though a good wood engraver can remedy these defects by treating the metal block just as though it was wood, engraving on it, cutting out, save where it is right, all the mechanical look. But two factors are necessary, first a good engraver, and, second, a publisher who is willing to pay for this engraving, which is expensive. The majority of publishers will not do so, though they will pay for the work of a good or notorious author. They will employ a feeble artist, a poor engraver, and a cheap printer, and talk of how much better the work was done thirty years ago. Of course it was; it was decently drawn and mostly badly engraved, vilely printed, but well paid for; now the photograph is the standard and the results are all about us; therefore you must think of the results. So make broad simple masses, keep your work as flat as you

can, remembering that all blacks will have the little white dots of the screen more or less showing through them—these can be kept out by the engraver, but they certainly will appear in the cheapest work ; remembering that all delicate grey tones will be eaten up by the screen, therefore don't put them in if you can help it ; and, finally, that unless whites are cut out they will never appear, instead you will have a dotted grey effect.

In the very near future many of these imperfections will disappear, for you must remember that it is scarcely ten years since half tone began to be used at all. But look, whenever you see them—and they are everywhere—at the reproductions of half-tone work ; try and study out how the artist got his effect ; go to the art editor who published the drawing and ask to see the original. Talk with artists who do good work in black and white ; they are mostly human, intelligent,

and willing to help and advise you. Go to the engravers' shops and find out what the engraver will tell you, and to printing offices and see your work on the press.

I have already spoken of the reproductions of line drawings by the half-tone process. One is sometimes tempted to wish that all line work could be reproduced by half tone and tone work could be reproduced by line, because if the line is delicate or the drawing is thin, the screen over it gives a tint which is pleasing, at times makes it look like an etching somewhat, especially if the tint be judiciously cut out. You might look at some of C. D. Gibson's work, where very great delicacy has been obtained in this way. Engravers are now endeavouring to get the tint just where it is wanted, and I have no doubt they will succeed. When they do, photo-engraving by the half-tone process will be greatly improved.

Finally, study the requirements of the process not only as artists, but from the point of view of the engraver; go down to his shop and find out how the work is done; make him show and tell you; insist on seeing proofs of your drawings—good proofs, too; make corrections on them, first learning what corrections can be made. You cannot have blacks put in your engravings if they did not exist in the drawings, and, roughly speaking, you can only tone down, not strengthen any engraving; but you will find, save in cases of blacks, it is only toning down that the engraving wants, thinning and greying of lines.

All this, I have no doubt, is very dry and uninteresting and tedious, but unless you get these things into your heads in the beginning, your drawings will not photograph well, engrave well, or print well; and if they don't, you will not get any illustration to do, and you may have yourselves to blame for it.

LECTURE VI.

REPRODUCTION OF DRAWINGS BY WOOD ENGRAVING.

WOOD engraving, as a fine art, has been virtually invented, developed, brought to apparent perfection, and yet ceased to exist, temporarily, almost, as a trade, in this century.

A wood engraving is an engraving made with a graver, upon a cross section of box-wood, that is upon the end, and not the side, of a plank, in relief. As in the case of mechanical engraving, all the wood, excepting that underneath the design upon the block, is cut away, and the picture remains

alone in relief, raised upon the surface of the block of the same height as the type; thus the block may be placed on the press and printed with the type.

The first great wood engraver was Thos. Bewick, and he, unlike many of his followers to-day, was an artist, and mostly made his own drawings on the block and cut them as he wished. He saw that wood engraving was a substitute for the slower, more tedious, and more expensive method of steel engraving; that, most important, many of the qualities of steel could be imitated in wood, as the same tools were used; that it could be printed with type; and, save that the richness of colour could not be retained, that it had most of the advantages of metal and few of its disadvantages, and was vastly cheaper. From the first, the imitation of steel was considered the proper aim, and though early in this century Stothard drew with a pen

upon the block, and his designs were facsimiled in the wood by Clennell, the prevailing fashion was the imitation of steel engraving, even by Bewick himself. Many of his lines are exactly those used by the steel engravers. By the middle of the century steel engraving virtually disappeared, its practitioners being unable to compete with wood engravers. There have been but few original engravers in this form of art, and though the work of some of the steel engravers who reproduced Turner and Roberts, Wilkie and Landseer, is marvellous, the art is almost dead at present. Cheapness has killed it. Wood engraving also killed lithography—a lithograph cannot be printed with type—and consequently the wood engraver became a most important person. He ran a shop with many assistants; he commissioned artists to make drawings for his assistants to engrave, he dictated

the way in which these drawings were to be done, the way in which the lines were to be drawn and washes made, so that they could be cut most easily. He commissioned writers to work up or down to the artists; he printed the books and sold them to the publishers, who were content to put their names on the title pages. And by this method much good and more bad work was accomplished, but the engraver finally became supreme, autocratic, dictatorial, insufferable; and then he vanished, as a shop. Process stepped in, in its turn, on account of its cheapness; and to-day, unless the engraver is an artist, he is but the slave of the process man, a hard fate—but his own. Before the introduction of photography, artists had to make their designs for the wood engraver the size they were wanted upon the block of wood, if portraits of places, reverse them, in pen, brush, pencil, or wash; the engraver cut

around and through these designs, making a translation of them in relief on the block which could be printed from. But the drawing had disappeared, and the artist had nothing but the engraving to show for it, hence endless difficulties arose; good artists hated to have their drawings cut to pieces; good engravers hated to have their work criticised unfavourably; also, drawing of a small size, and in reverse on the block was difficult to learn, and only a mechanical craft of no artistic advantage when learned. Therefore, as soon as it was possible to escape from the drudgery, to draw of any size on paper and have that drawing photographed on to a sensitised wood block, of the size it was wanted, in reverse, all artists took to it. And a new school of engravers arose, men who tried to invent new methods of engraving so that they could express the medium, as well as

the subject, in which a picture was produced. True from Stothard onward, through Meissonier and Menzel, engravers had tried to render pen and pencil drawings in line on wood; now everything began to be attempted, charcoal, etchings, steel, water colours, lithographs, oils. All the imperfections, accidents, and blemishes were preserved, even if the picture disappeared. But a number of most distinguished artist wood engravers appeared, especially in America, though few of them learned their trade in that country. But they received more encouragement, better pay, better printing, and better artists worked for them. And so the school of American wood engravers, many of whom are not Americans, was born.

Now how is the modern work done? The artist's picture in any medium, of any size, is given to the photographer, who copies and reverses it, prints it on the

block of wood which has been sensitised for that purpose. The print is usually not very good, that is, it is darker, with many of the qualities of the drawing lost; but it serves only as a guide or a tracing for the engraver, who takes his tools, and with the drawing behind him, reflected in a mirror to reverse it, proceeds to cut the photograph of the drawing into relief, at the same time trying to preserve the look of the canvas, paper, or metal on which it was made, and the feeling of the colour, wash, or paint with which it was executed. All this is most difficult, but a most artistic result may be obtained, and one has but to refer to the magazines of America and some of the weekly papers of Germany, France, and Spain, for a proof of it.

Here, though much good wood engraving has been printed, outside the offices of Messrs. Macmillan, Cassell and Co.,

and the *Graphic*, it has of late years been mostly in the form of copies, electrotypes, clichés from foreign blocks which are supplied by their makers, all over the world, at a very low price, because they are not reserved for any one paper or book. And when you begin to see a man's painting, or drawing, or engraving in every paper, you begin to tire of him and his work. The editors of papers which publish clichés seem to be the only people who like the multiplication and cheapening of art, but then there is no accounting for their tastes. The tools and appliances for making wood engravings are simple enough, but to engrave anything but *facsimile* work, or your own designs, will necessitate your going through considerable practical training; probably some years of apprenticeship.

To cut line drawings on the wood, or to cut designs in large simple masses, you do

not require so much practice. All the tools you need are different sized gravers and gouges, a small chisel to cut large spaces, an engraver's rest for the block, so that it can be turned freely and easily about, and a whetstone to sharpen your tools.

Lamps and globes for water, shades for your eyes, you will scarcely need, but a magnifying glass, something like that which watchmakers use, may be useful. With these simple tools and some box-wood—they can all be bought in East Harding Street or at any colour maker's—you have the necessary appliances.

If you draw on the block, a slight wash of Chinese white will help to make it work easily. Draw with a brush or pencil; or if in wash, without body colour, as that will chip off. You have only to remember that the block, either plain or with the drawing on it, would print perfectly black, and that

every line you make with the graver in the surface of it, will print white. Therefore, as I have said, to get an outline engraving, you simply cut away everything but the drawing, which is left in relief on the surface of the block, and which alone prints, the rest of it being cut away. It is not necessary to engrave the surface very deeply, only so much that neither the ink nor the paper will touch in the hollows between the lines or masses. Mistakes are not easy to remedy, except by making a hole in the block and inserting a plug of wood, and then engraving that afresh.

The art of engraving in *facsimile*, that is, of engraving around lines made with pen, or brush, or pencil, is comparatively easy, it only requires much training and a steady hand. But the ability to translate a work in colour into black and white, on a wood block, so that it shall

give a good idea of the original, is far more difficult. To do it well, the engraver must not only have the knowledge of the technical requirements of his craft at his finger ends, only to be gained after years of apprenticeship, but he must be a trained artist as well. If he wishes to get the best results, he must have the original before him, he must understand it and appreciate it. And finally, he must have the technical skill to engrave it. Even then, most likely, the artist will not like the block. It is a difficult art, a thankless art, save in the rarest cases. one which requires years of special training, and at present in this country, no matter how great an artist one is, there is very little chance to practise it. Work of this sort you cannot expect to be able to do without years of training; if you care for it you must apprentice yourself to a wood engraver.

Still there are forms of wood engraving which you may take up, from the most primitive to the most complicated, and you may carry out the work from the designing of it to the printing of it yourselves, or, you may draw on the block and cut away, as in engravings by the late R. L. Stevenson (or were they done by Lloyd Osbourne or some other ghost?), and possibly you will have an experience like this:—

> "A blemish in the cut appears,
> Alas, it cost both blood and tears.
> The glancing graver swerved aside,
> Fast flowed the artist's vital tide,
> And now the apologetic bard
> Demands indulgence for his pard."

Or I imagine without much trouble you might invent something in the style of Valloton, a Frenchman, who is resurrecting wood cutting in a manner of his own, while carrying on the traditions of the old men. I hope you may be able to get as much life

and go in it as he has. Make your drawing on the wood, or on paper, have it photographed on the wood in the latter case, and cut around the lines, leaving only the drawing. The greatest difficulty is with fine lines, and you see how cleverly Valloton has avoided making them. Or, like Lepère, another French artist—he would be a man to study with—do big, bold, effective things; or again you might attempt, as he does, colour work on wood, like that done by the Japanese, drawing it, engraving it, and printing it all yourselves.

Or, take up drawing and engraving in the manner of Caldecott, Crane, or Kate Greenaway, when they were reproduced and printed by Edmund Evans.

Process is fighting for colour too, but wood, at least in proofs, and that is all you would care for, gives some qualities far beyond process.

In colour printing from wood blocks as many blocks must be made as there are colours, and there must be as many separate printings made from these blocks as there are colours in the printed picture. There must also be an outline block called the key block. Usually in European colour printing, whether from wood blocks, or by lithography, or even process, the colours are printed on top of each other; for example, a blue is printed over a yellow to get green, and at times several colours are superimposed, with the result that colour is lost and mud obtained. The Japanese have shown us how to make colour prints, however, and their method is now adopted by all intelligent colour printers. It consists in making the right colour before it is put on the block, and in placing the colours side by side like a mosaic. The work is done somewhat in

this way; the artist makes his drawing, several tracings (as many as there are colours) are made from it, and one extra tracing must be made of the outline only. Or rather the outline alone is cut on the block, other blocks are then made for each colour, or the parts cut out of the same block; one will contain all the red, another all the blue, a third the yellow, and so on. They must be very accurately cut, so as to fit together and print truly, and you can see from Japanese prints how wonderfully well the work is done. Of course the editions from such blocks are very limited, and on this account, like etchings, often vary, the printers having tried experiments in colour. The grain of the wood is taken advantage of in printing, as it often gives a lovely pattern; a good printer will wash in gradated skies with the backgrounds, and no matter how wonderfully they are

worked, if of the same colour, are printed usually from the same block. The Japanese, I believe, use water-colours; certainly the French and English, who have tried to imitate them, do, putting the colour, mixed with a little size or gum, on the face of the block with a sponge; in fact they are printed water-colours. Several Frenchmen have obtained in this way most notable results. Very similar was the fashion of colour printing called chiaroscuro, used in the early part of the century. The trouble with this was that the oil with which the inks were mixed, either ran, or spoiled the pages, or did not dry well. Drawings on grey paper in chalk can be wonderfully imitated in this way, and there are methods of using steel and copper plates, bitten into relief to get outlines or tints, which were also employed. To-day in the printing of wood engravings

and process blocks by steam, at many thousands an hour, the same system of colour printing, by placing the colours side by side, is being attempted, for it is impossible to obtain fine tone or rich effect by placing one colour on top of another, even in slow printing by hand, while it is absurd to attempt it rapidly by steam. In the most successful attempts yet made, those of the *Le Quotidien Illustré* and *Le Rire*, Paris papers, colour printing from process blocks has been most successfully done, and I do not doubt that in a very few years colour printing in magazines and newspapers will be very general.

As I have said, all intelligent printers have now come to the conclusion that simple flat colours, put on side by side, will alone give good artistic results; they have only learned this, however, after going quite to the other extreme: after

trying to get pure colour and rich effects by using the three primary colours on top of each other, they obtained but crudeness, vulgarity, and mud.

Photography and chemistry are useful in art, but art cannot be created by these means. It may be that some one, some day, will be able to photograph a picture in colour, but there is as yet no evidence of it.

Wood engravings may also be made by scraping or lowering the fronts or backs of blocks, and rich, soft, fat effects can be produced. Very little has been done, I think, with these lowered blocks, some remarkable examples of which can be seen in Chatto and Jackson's "History of Wood Engraving."

Photography has aided the artist very much in wood engraving (though most engravers say it has not), and especially

in colour printing it can be made great use of; as, instead of tracing a design on to several blocks, it can be photographed, thus ensuring accuracy—though the Japanese obtained this without any photographic aids —and saving much time.

Still, that is about as far as it goes at present, and photography will never supersede art, though it is engaged in a famous struggle with artlessness.

LECTURE VII.

LITHOGRAPHY.

LITHOGRAPHY, for some time the rival of metal engraving and even for a time of wood, was invented at the end of the last century, and, as its name implies, is the art of drawing or writing upon stone. Briefly, a peculiar grained stone, found in Germany, may be drawn upon with greasy chalk or ink; afterward it is slightly etched, only washed really, with weak nitric acid and water to fix the drawing and somewhat reduce the surface of the stone; if the stone be now covered with gum, allowed to dry,

and then inked, the ink adheres only to the drawing; and if a sheet of paper is placed on it, and the whole passed through a press, a print, or rather the drawing in ink, will come off on the paper. This is roughly the art of lithography.

The most important consideration for you, however, is the making of the drawing. This may be done in one of two ways: either upon the stone itself, or upon transfer paper specially coated, so that the entire drawing is transferred from the paper on which it is drawn, by mechanical means, to the stone, and not merely a print from the original drawing. For many reasons it would probably be best to draw upon the stone itself always; because, first and above all, the less intervention—even mechanical intervention—there is between the artist and his work, the better; and in many cases it is not possible to get good results unless the artist

works on the stone. But if one has to make a large drawing out of doors, it is obviously impossible to carry about a big and heavy stone with one; therefore lithographic transfer paper must be used if the work is to be done from nature.

Before this paper was perfected (it is very good now, and can be obtained from Hughes & Kimber of West Harding Street, and Corneillisons' of Long Acre), the artist either copied his sketches, studies, or pictures himself, on the stone, if he understood lithography; or else his drawings were copied for him by some other artists who were trained lithographers. One most notable example of this is to be found in J. F. Lewis's "Alhambra." The originals by Lewis were redrawn on the stone by J. D. Harding, J. Lane, and W. Ganci, as well as by Lewis himself; inevitably some of these men's individuality was apparent, and even in the

case of Lewis, much must have been lost by copying his own designs; and if original work is given to professional lithographers, in ninety-nine cases out of one hundred all the real character is taken out of it. To-day, however, one may draw upon transfer paper, being careful only not to touch it with one's fingers, either in lithographic chalk or lithographic ink, which is only the chalk rubbed down and put on with a pen or brush, on this paper, which should be fastened down like an oil sketch, in a box having a cover, by drawing pins. Take the drawing to the printer; he will put it on the stone and print it for you far better than you can do it yourself; still this is rather expensive, as the transferring of the drawing to the stone and pulling a few proofs will cost you about a guinea. But if your design can be drawn in your own studio, or at the lithographer's, on the stone, it is not only much

simpler, but the result may be better, and you can employ more varied methods of work. For example, you may draw with the lithographic crayon — Lemercier's are the best; get them at Lechertier & Barbe's —just as you would with ordinary chalk or crayon. For if the stone is grained like paper, the design, if well printed, should look almost exactly like a drawing on paper. On a smooth or ungrained stone you may draw or write with pen or brush and lithographic ink, which is only the crayon rubbed down with gum arabic, or ammonia and water, as you would rub down Indian ink, only you must heat the saucer in which you are rubbing it, a little. When you have done this, use Gillott's lithographic pens, putting the ink on the pen with a brush, or use a trimmed sable brush brought to a fine point; you must make your lines carefully, and get your ink of the right consistency, otherwise it

tends to blot and spread or smear. Again, you may mix more of the medium with the rubbed-down crayon. I should say it rubs, when warm, without water; this medium may be obtained ready mixed from Way & Sons, Wellington Street, Strand; paint with it as you would in water colours, adding more of the medium or more ink as you wish little or much colour. I have tried only a couple of experiments in this way, and they were both complete failures. The trouble I found was this: in making light tones, the moment the brush charged with colour touches the stone, the stone itself turns much darker than the colour you are putting on it; and as it dries out very slowly, the making of a wash drawing is a most tedious process, unless one has had enough experience of the work to know just the effect of the finished drawing, or rather just the effect of the wash applied, which cannot

be seen in its proper tone, while working on the stone, since the appearance the stone presents so long as it is wet is absolutely different to what it will look like when dry, and it is almost impossible to work over washes, because the colour floats off if they are gone over again, or at least smudges and smears; still, corrections and additions can be made with the crayon point, and the whole design brought pretty well together. The best work in wash has been done by Lunois, a Frenchman. Corrections are at all times difficult to make in lithographs, the error having to be scratched out and the stone repaired in that spot, before the new work can be put in again.

Stump drawings may be made by getting the crayon in powder and smearing it on the stone in masses with a rag. Effects can be obtained by removing too much colour with ordinary scrapers and putting in modelling

with stumps and the point of the crayon; or all three of the methods I have mentioned may be combined, as they often are, on the same stone, notably in the work of Hervier.

Tints may be obtained by stippling and splatter work, as in pen drawings. There is a machine called an air brush, used by lithographers for this purpose, but the introduction of mechanical dodges has done much to harm lithography.

Zinc may be grained and drawn upon in the same way; why this metal is not more generally used, I do not know, for it is much lighter, more portable, and can be easily mounted on a plain stone to print from.

Until lately it was maintained that only what was drawn on stone could be got off it in a print. But Mr. Goulding, the etching printer, who has been making a series of experiments, says he can get almost as much variety of effect, by wiping the surface of

the stone carefully, in a small number of prints, as he can from a copper plate (*see* Lecture on the printing of Etchings). Still, for you, the process ordinarily will end with the drawing. Even the transferring is only to be successfully done by skilled workmen, and until you can print an etching decently, it would be scarcely worth while to try a lithograph.

Considering that the process is perfectly autographic, that the materials are few and cheap, it is strange that it is so little employed at present. But a very serious attempt is being made to revive it, and as an artist like Mr. Whistler is the leader and initiator, I believe it will be successful.

Colour printing by lithography, though very complicated, might be tried by you; as many stones must be prepared for transferring the design, made either on paper or stone, from the paper to stone,

or from one stone to another, as there are colours, and only that part of the design which is of one colour must appear on one stone ; if you try to get colour prints in the usual fashion by printing one colour over the other, you will obtain the usual commercial muddling lithographic appearance. But if you mix your own colours for the lithographer, and have the colours placed side by side, in flat masses like the Japanese block prints (*see* Wood Engraving Lecture), you should get good results.

There are endless other processes and methods of work, but they are all more or less complicated, and require special training and special tools, and even machinery, and one who wishes to pursue the subject further must go to a lithographer and learn the trade.

But in order to get artistic effects only, one has but to draw or paint on paper or

stone as one would ordinarily. The means are most simple, and the results should be most interesting.

LECTURE VIII.

ETCHING.

IN all the various methods of making illustrations to which I have so far called your attention, it was necessary that some part of the work should be done by a specially trained craftsman, at least if any practical and commercial result was desired.

Now in etching, the more you yourselves do and the less any one else does, the better should be the result.

An etching is, in its narrowest sense, a print from a metal plate into which a design has been bitten or eaten by acid; again, in most of the other methods, the printing was from relief blocks like type, and therefore those

illustrations could be printed with type. Now we have to consider another sort of work, namely, intaglio, or incised, or sunken work not printed from the surface, but from lines cut below it, and therefore unavailable for letterpress printing. Of course it would be easy to make a relief block in metal, or an incised block of wood, to reverse the treatment in printing, but it would not be natural or right.

The whole difference is this: if a wood block has a line cut in the surface and the whole face is inked with a roller, the line will print white and the rest of the block black. If the etching plate is inked and cleaned off, as is always done, it will print white; if a line is cut in it, the ink will remain in that and produce a black line. Of course they must be printed in appropriate presses.

In its broadest sense an etching may be produced in any one of a number of ways,

by the artist, on a metal plate which may be printed from.

It is never a process or mechanical engraving, and never was and never will be, and the attempt to palm off mechanical blocks or plates is a swindle and a humbug.

Etchings are produced in the following manner; at least this is the best and simplest method.

A plate of highly polished copper, zinc, or even steel, iron, or aluminium is obtained from the makers, William Longman, of Johnson's Court, Fleet Street, or from Messrs. Hughes & Kimber, West Harding Street, Fetter Lane, or Messrs. Roberson, 99, Long Acre. Copper, however, is the best and almost universally used. This should be carefully cleaned with a soft rag and whiting; then it should be gripped by a vice with a wooden handle, in one corner, care being taken to put a piece of soft paper

between the vice and the plate to keep the teeth of the former from scratching it; heated, either upon an iron frame with a spirit or Bunsen lamp under it, or over the gas, until, if you take a ball of etching ground and touch the plate with it, the ground melts. This ground is made of resin, wax, and gum; the best is made by Sellers in England and Cadart in France. All these materials can be bought of Roberson or Hughes & Kimber. Touch the hot plate in several places with the ground. It should melt at once; then take an American etching roller (which I think you can only obtain at Roberson's) and go over the plate rapidly with it in every direction, until the little masses of melted ground have been spread evenly and thinly in a film all over it. With a little practice you should be able to do this in a couple of minutes, and you can lay in this way (which is unknown virtually in England) a thinner,

harder, more even and very much better ground, with less trouble, than in any other. Heat the plate again a little more, and take a bundle of wax tapers twisted together by heating them, light them and pass them under the face of the plate held, varnished side downwards, by the vice; do not touch the plate with the taper, or the varnish, being still melted, will come off, but go rapidly back and forward, allowing the flame only to touch the surface. In a few minutes the varnish will have been completely blackened by the smoke. Next, take a bottle of stopping-out varnish (which you may as well buy; don't bother to make it) and cover the back and edges of the plate. If this is done while the plate is hot, it dries very fast, and as soon as the plate is cool it is ready to work on.

This is the first stage. The waxy ground is put on to protect the plate from the acid

with which it is to be bitten, and it must be so well made and well put on, that one can draw through it, without tearing it up and without any resistance; also it must adhere firmly to the plate, where it is not drawn through, and must resist the acid perfectly in the untouched parts. The smoking is done to enable you to see your lines in the copper, light on dark; this is rather curious at first, but you will get used to it. The stopping-out varnish is also to protect the plate, and is only a cheaper sort of ground dissolved in oil of lavender or ether. When the plate is cool, it should be of a brilliant uniform black, and if there are any dull, smoky-looking places on it, the ground is burnt. Here the ground may be rubbed off, or will show cracks, if you touch it, in these places, and the varnish should be cleaned off the face with turpentine, the plate carefully dried and regrounded. Otherwise the varnish will

either crack while you are drawing on it, or come off in the bath of acid, and your work will be spoiled.

You draw upon the varnished plate with needles or points; any steel points will do, from a knitting-needle to the best big point you can get. The small needles invented by Mr. Whistler I find the best; but this is a personal liking. They are of all shapes and sizes. You may commence and draw in your entire subject, only remembering that you must leave your foreground lines further apart than those in the distance.

You may make your drawing either with the same needle, all over, or with needles of different sizes; for though one half of the art is in the drawing, the other half, and the really characteristic half, is in the biting. There is very little to be said about the drawing, save that you must draw just as well as ever you can; you will find out almost

immediately that you have the most responsive tool in your fingers, and that you can work with it in any direction. Do not bother, if you use the same needle, because the drawing looks flat, and the lines are of the same width; the biting will fix all that. Draw away; if you are afraid to tackle the copper straight away with a point, paint your design on it, with a little Chinese white, or, if you have a pencil drawing of the subject, you may make a tracing from it, and go over that, transferring it to the plate; or you may turn the drawing face down and run it through a copper-plate press; the drawing will come off on the varnished surface in reverse, and if you are doing a portrait of a place you must otherwise reverse it yourself. If you wish to sketch from nature in reverse, put up a mirror on an easel, and turn your back to the subject, drawing from the picture in the

mirror, for, you must remember, that any subject drawn, as you see it, on a copper plate, or even a wood-block, prints in reverse.

Next, to bite or etch the drawing into the copper plate, take equal parts of nitric acid and water and mix them in a glass-stoppered bottle, some hours before you wish to use the mixture, for there is enough heat produced by the chemical action to melt the ground if it is used at once.

Or have a quantity of what is known as Dutch mordant made; this is composed of—

Two parts Chlorate of Potash,
Ten parts Hydrochloric Acid,
Eighty-eight parts water.

Next, get an ordinary photographer's porcelain or rubber bath or tray; lay the plate in it, pour the acid over it; in a few seconds bubbles will arise, in all the lines; brush them away with a feather; leave the plate, if

there is any fine work on it, in the bath for only two or three minutes, say for a light sky; take it out with rubber finger-tips or a stick, for the acid will burn your fingers and a drop will rot your clothes, staining them light yellow; wash the plate thoroughly in clean water, dry it carefully with blotting-paper. Take some of your stopping-out varnish, thin it with a little (a very little) turpentine, paint over the very lightest parts of the drawing with a camel's-hair brush dipped in the diluted varnish, and thus stop them out—that is, stop them from biting any more by painting them with the varnish. Wait till the places where you have painted the varnish are thoroughly dry; then put the plate in the bath again and bite the next stronger, nearer set of lines; of course, save where the lines are covered by the stopping-out varnish, they will keep on biting. Continue biting and stopping out till you get

to the foreground, where the lines should now be quite broad and deep; take off the ground front and back by washing it with a rag dipped in turpentine, dry it, and the plate is ready to print from.

Another method is to commence by drawing in the darks, biting them, then drawing in the middle distance, the darks going on biting all the while, and finally the extreme distance, when the whole plate will be biting together; by this method no stopping out is necessary, but in working out of doors it is awkward to carry baths and acid around with one, otherwise one must run back to the studio, to bite between each stage. But these two methods can be mixed up, and frequently are, and you may also work in the bath, drawing lines through or over others, thus getting richness while the biting is going on. The bad fumes which are given off during the biting are not dangerous. In

working with the Dutch mordant, which bites slower than nitric acid and makes no bubbles, but bites straight down, while nitric acid enlarges the lines laterally, you will inhale much of the fumes, but they won't hurt you. Although you do not see any action with the Dutch mordant, brush the lines with a feather, else a deposit is formed and they will bite unevenly.

It is very difficult to tell when a plate is well bitten, the biting is very difficult, but on taking it out of the bath and holding it on a level with your eye, you can see the bitten lines; you can also feel the biting with a needle, and you may take off a bit of the varnish with your thumb-nail or turpentine and look at the lines, re-covering them again with the stopping-out varnish; but after this, of course, they will not bite in that place.

Again, the lines do not bite evenly; where they are close together they bite faster, and,

after the plate has been in the acid some time, it may change its speed of biting; differences of atmosphere and temperature affect it even with the same acid on the same day; if the nitric acid is too weak add more acid; if too strong pour in water, and quick, else the ground will come off: it is too strong when it boils and bubbles all over; it is too weak when there are no bubbles. Dutch mordant eats always slowly, and never, so far as I know, destroys the ground. At the last, for very strong darks, you may sometimes use a little pure nitric acid, but it will most likely tear up the ground, and if you leave it long enough will spoil all your lines, giving you only a great black hole. These are the systems employed by all etchers; the lengthy dissertations about white ground, silver ground, positive and negative processes, need not concern you, they are never practised, and mostly un-

known to the best men. These simple directions should enable you to produce artistic plates, if you have the necessary ability. Still, when you have had a proof of your plate pulled—I will talk of printing in the next lecture—you will find that there are all sorts of imperfections in it, possibly holes, places where it is not bitten enough or too much bitten, or that it is too dark or too light all over; it is but seldom that a plate is right when the first proof is pulled. If you find a hole bitten in it, take a burnishing tool, flatten the hole down as much as possible, find the place on the back with a pair of calipers, hammer it up from the back, placing it on an anvil, burnish it again and polish the surface with charcoal, oil, and rags; revarnish the place, redraw, and rebite it. If it is only a small place you may take up some nitric acid on a feather, and paint the little spot to be rebitten with that. A

few drops of the acid have nearly as much power as a great deal. In fact you may paint the face of your plate with acid and do your biting in that way, without ever immersing it in the bath at all. If it is too much bitten it must be rubbed down with charcoal and oil, a tedious process. If it is too light it must be rebitten all over; then take a rebiting roller, putting some liquid etching ground on a separate plate, take the ground up on the roller and roll the face of the plate very carefully; the ground should cover the face without going into any of the lines; heat it very slightly to dry the ground, leave it for a day or so and then bite as before. If there are places where lines want joining or little touches of dark would be effective, put them in with a graver or a point.

You may use a graver altogether, and produce a line engraving; or a point,

either steel or diamond, and make what is known as a dry-point etching, that is, merely a scratched drawing on the copper; the point throws up, as you draw with it, a furrow, which is greater or less as you incline the point, and this holds the ink, and is called burr, and gives for a few proofs great richness; a steel face can, however, be put on the copper plate, and any number of pulls may be taken. The difference between the cutting of lines with a graver and the drawing of them with a point is this: the graver, both in metal and wood, is pushed from one; the point in etching, and even the knives in wood cutting, are drawn toward one.

Messrs. Roberson have invented a plate of celluloid which, for dry point work, seems to be fairly good, and as this plate is white or cream-coloured, as one draws on it the lines may be filled up with paint, and one

may thus see the drawing as one works. Of course, the same thing may be done with dry point on copper. The great advantage of the celluloid is its lightness. It must not, however, be heated in printing, otherwise it will be ruined. Many etchers are now making experiments with aluminium, but no certain results have as yet been obtained.

There are many other forms of engraving included under the title of Etching, although, properly speaking, they have nothing to do with it.

Aquatint: a ground, made by depositing powdered resin in solution with spirits of wine, is poured on the plate, slightly heated, and as it dries the resin adheres to the plate and cracks up irregularly; a drawing may be made on this, and stopped out in the usual way. Or powdered resin may be sprinkled on the plate, heated, when it will adhere, or the plate may be placed in

a box containing resin in very fine powder, heated, and the box shaken; the resin will settle on it and produce the ground.

A very similar ground may be made by passing the ordinarily-grounded plate through a copper-plate printing-press, with a piece of sandpaper over it, three or four times, then the design may be painted on it in stopping-out varnish, and at times a very good result may be obtained. Lines may be put in, etched before the ground is laid; but personally I don't like the lines at all; without them the result is rather like a bitten painting. Silk and canvas can also be placed on the grounded plate, which is then run through the press, to get tints in the ground.

Tints may be obtained after the plate is bitten by painting it with olive oil and sprinkling flowers of sulphur on it, which gives a very charming tint, but it does not

last long; I believe that if acid is poured over it, it may last better. Mr. Frank Short says so, but I have never tried the experiment.

Soft ground etchings are made by mixing etching ground and tallow together in equal proportions, covering the plate with this composition by means of the roller: that is, put some of the composition on a clean plate, pass the roller over it till it is covered with the soft ground, and then roll it on to the plate on which you propose to work, smoke it and then stretch a piece of rough-grained or lined drawing paper over the face, as paper is stretched for making water-colours, draw upon this with a lead pencil and then carefully take the paper off; you must not rest on or touch the plate with your fingers; the ground comes away with the paper where the pencil has passed, and the design is seen on the

copper, and is then to be bitten in as in ordinary etching.

Mezzotint is also included, for some unknown reason, with etching. The face of the plate is roughened in every direction by going over it with a toothed instrument called a rocker, until it will print perfectly black; the design is then traced on it; the drawing is made by scraping down the lights, and finally by burnishing the whites quite smooth.

Tint effects can also be obtained by a smooth-toothed wheel, the roulette, the same as that used by process engravers; only here it produces blacks, while they use it to get lights.

Monotypes, that is paintings made in colour or black and white on a bare copper plate in the usual way, though they must be handled thinly, may be passed through the press, and they will yield one exquisitely

soft and delicate impression. The electrotyping and duplicating of them changes their character and value entirely: it is a ridiculous and inartistic proceeding.

But after going through all this list,—I have barely referred to steel engraving in line, which, as I have said, is only working with an ordinary graver in steel, and is slow and tedious, unsatisfactory drudgery; or to stipple engraving, dotting and biting in dots, instead of lines, as practised by Bartolozzi,—one comes back to the simple method I described at first, the method with some improvements of Rembrandt, the method of Whistler, or in dry point the method of Helleu; and what is good enough for those masters should be good enough for you.

LECTURE IX.

THE PRINTING OF ETCHINGS.

WHICH is the more interesting and amusing—the drawing, biting, or printing of an etching has never been decided. But no artist is willing, if he can help it, to allow any one else, once he has mastered the method of work, to perform any part of the operation for him.

The printing of an etching is, in theory, very simple; in practice, it is most difficult, but most delightful.

The plate being bitten, as I have described in a previous lecture, must now be printed, for the prints from it, and not the plate itself,

are the end of etching—really of all illustration.

You will have to spend several pounds on an etching outfit, so you had better get a good one. The small ones, including press, ink, chemicals, quite complete, sold by Roberson, of 99, Long Acre, are most excellent as far as they go, for small plates, and taking round the country with one on a sketching tour; but for serious work, a more practical set of tools is necessary. Therefore I would advise you first to take lessons of a good etcher, who will allow you to work with him, or to go to a printer and get him to show you how the work is done.

This is the method: the first thing to do is to obtain some good handmade paper, almost all old paper is excellent; it should be unruled, of course; often the tone of it is lovely, and it may contain most beautiful water-marks. I am referring to Dutch,

French, English, or German papers of at least a century old. At times you may be able to pick up old ledgers, account-books, or packages of unprinted paper; treasure them up; if you don't print etchings on them, there is nothing more delightful to draw upon. There are also Japanese and India papers, which give most beautiful delicate translucent effect to prints. Vellum, parchment, and even silk or satin may be printed on. But as a general rule the old handmade Dutch paper is the most satisfactory, if you can get it. For ordinary work and experiments, modern paper is quite good enough, and very good handmade paper can be obtained from Roberson's. Let us suppose you are going to print; twenty-four hours before, take several sheets of paper, rather more than you want, in case of failure or for any other reason; cut the sheets the size you desire them, a little larger than the plate,

so as to leave a decent margin. Cut the paper first; Japanese paper, for example, cannot easily be cut when it is wet. Get a sheet of window glass, lay it flat on a table, take the first sheet of paper and damp it on one side by passing a wet sponge over it, lay it on the glass; on top of this sheet lay another dry one; damp the top of that with the sponge; and continue laying down sheets and damping their upper faces till you have enough; put another sheet of window glass on the top, and a heavy weight upon it; in a day the whole mass should be completely dampened all through. I believe the same thing can be done by a copying press and book, and I have heard it is so done by lithographers, but the way I have described is the usual one that is followed by plate printers. The next thing is the press. A good secondhand one may be bought at Hughes & Kimber's, West Harding Street,

Fetter Lane, for about five pounds. Much depends, however, on the size and finish. You should have it brought to your studio, set up and adjusted for you by skilled workmen. Then you must buy a heater and a jigger for your plates, ink, oil, canvas, and a number of other things, dabbers, a muller, an ink-slab, and a big palette knife ; all these will run up a bill of ten pounds or so.

But having your press and other things, let us go to work: light the gas-burners under the heater which you have bought ; if too much flame comes out and makes the iron top too hot, plug up some of the jets. Put your plate on the top of the heater. First, however, see that your press is adjusted, so that the plate will fit in. To do this, put a piece of paper on the top of the plate and run it in the press to try it, and see if it goes under the roller without tearing the paper. Take some of the ink out of the

can, or better, get it in powder, put it on the ink-slab and mix it with oil with the palette knife; then take the muller and grind the ink until it is thoroughly ground and mixed and of about the thickness of paint as it comes out of the tube. But each plate will require more or less oil or colour, and some brown, red, or possibly blue mixed with it to take off the crude raw look which pure black often has in the print. The plate being now warm, not so hot as to boil or burn the ink, dab with a dabber the ink from the slab all over the face of the plate (it is warmed to wipe the ink off easily), slide it from the heater to the wooden box called a jigger, which must be placed alongside the former. You should get a printer to arrange your things for you. Take a piece of the rag or canvas for wiping, double it carefully and loosely in your hand—this requires much practice—and remove all the

ink which is on the surface of the plate. Even after you have wiped it some time, an oily film will remain, which, unless you polish the plate with whiting rubbed on your hand, you cannot remove, and you do not want to, because the oil gives a delicious tone to the print. Some ink may be left in places on the surface to increase and strengthen the work, but what you must learn to do is not to wipe any of the ink out of the bitten lines. This is very difficult, and if you do wipe it out, you must commence all over again, only the chances are that you will know nothing about this until the plate is printed. The colour may also be increased by going over the surface of the plate, having again warmed it, if it has become cool, with a bit of soft taffatas silk with a trembling muscular motion of the arm and fingers. This action, called retroussage, which must be seen to be understood, drags

the ink slightly over the surface of the plate without taking much out of the lines.

Now take off the weights from your paper, take up a sheet, which should be thoroughly damped, first brushing it with a soft brush to remove any drops of water or dirt or dust. The paper should be placed near the press. Put the plate face upwards on the press, on which the blankets have been properly arranged—you must see this done for yourselves—the plate underneath of course ; lay the sheet of damp paper on the face of the plate and run it through the press once ; it is well to put a sheet of ordinary thick paper on the top of the damp sheet, otherwise the latter will stick to the blankets ; raise the blankets and take up the first sheet of paper, the print will most likely adhere to that, if it does not, take it up carefully by one edge, it will come away from the copper, and you will find the print on the under side of it.

Japanese and India prints require very careful handling, especially the latter. They are usually printed on to a sheet of plate paper by dusting it, or the back of the India paper, with flour; this, on passing through the press, is made into paste by the dampness of the India paper, and they are thus moulded together.

As soon as the prints are taken off the press, put them between sheets of blotting paper and allow them to dry for some time, they will come out flat; if you neglect this, they will crinkle up very badly, and are difficult to get smooth again.

This is the way a copper plate is printed, but you must see it done and practise for a long time before you can do it decently.

Colour prints from copper plates may be made in one or more ways. The various colours may be put on by applying them where they are wanted with stumps, or the

plate may be painted by applying the colours with brushes. Several plates may be used, just as in lithography or coloured block printing, and these coloured plates wiped as I have been describing. Many prints, however, are coloured by hand after they are printed.

Mezzotints, acquatints, steel engravings, &c., are printed in the same way as copper-plates. The rubbing with the canvas and the hand, and the tremendous pressure to which the plates are subjected, quickly spoil the clearness and sharpness of the lines; therefore if any large number of prints are wanted, a coating of steel is put on the face of the copper-plate by steel-plating it; this protects the copper, and as soon as the steel facing shows signs of wear it may be removed, and a new film of steel applied; hence an unlimited edition can be printed in time from a copper plate. If it is

necessary that the printing should be done more rapidly, electrotypes can be made from the original copper-plate (*see* electrotype and stereotype Lecture), and several printers can then work on these electrotypes at the same time. The electrotypes are rarely equal to the originals.

Such is a brief outline of the method of printing copper plates; but I cannot too strongly impress upon you the fact that it is a handicraft which, though most interesting, requires long apprenticeship, with a master printer, and in one's studio, before good results can be obtained.

LECTURE X

PHOTOGRAVURE AND PHOTO-LITHOGRAPHY, ETC.

THESE processes or methods of reproduction are the outcome of the endeavour to supersede the artist and engraver. They are quite mechanical, or should be; in fact the less evidence there is of any intervention on the part of the operator or maker of a photographic plate, the better it will be for the work which is being reproduced; still, if an artist turns his attention to these processes, the finest results are obtained, even though he must completely efface himself in the work. M.

Amand Durand made the best photogravures ever produced because he was an artist. No mere photographic or mechanical engraver ever approached him.

The theory of photogravure and photolithography, in the best work, is the same as that of photo-engraving, which is described in a previous Lecture. In photogravure a photograph of a drawing is usually made on a sensitised copper plate; this is coated with some acid-resisting varnish, but when the varnished plate is washed with water or some acid, the varnish covering the picture on the plate comes away, leaving the picture on the bare copper. This is then bitten in exactly the same way as an etching, the success of the plate depending entirely on the artistic intelligence of the person who does the biting. Or else the photographic print is made on the varnish itself just exactly in the same way as for a zinc block;

only in this case the picture is washed away and not the surrounding portions; the biting is then proceeded with.

There are also many other processes of photogravure, while heliotype, autotype, Woodbury-type, collotype, are closely allied to it. The word type is probably used simply because by none of these methods can the plates be used with letterpress. All these processes, however, are very complicated, require expensive machinery, are quite outside the field of art, most secret, and, except theoretically, of little importance to you.

A good photogravure, for example, by Amand Durand or Ch. Dujardin is often a most excellent reproduction of a line-drawing or an etching—so good, in fact, as to be almost indistinguishable from an etching. But to endeavour to palm off pen drawings as etchings, when they have been

reproduced in some such way, is to act the part of a common swindler.

Photo-lithography is exactly the same as photo-zincography — process block-making. The drawing is photographed on to transfer paper, covered with lithographic ink and transferred to the stone like any other lithograph. This is a mechanical process; there are a number of ways of getting the drawing on to the stone, and the results are described under many names. Collotypes and other varieties of photographic prints are made from gelatine or other films; they require expensive machines to produce, they are all mechanical processes which you could not readily use unless you went into the business, and are quite outside your art.

One is being continually shown processes which are going to revolutionise engraving and incidentally do away with the artist; this has not yet been accomplished. But

just as one sees to-day the momentary triumph of the photographer—or rather of the person who is exploiting the poor photographer—one may remember that chromos have not annihilated painting, nor can the photograph ever be anything more than a useful aid to illustration.

LECTURE XI.

MAKING READY FOR THE PRINTING PRESS.

HAVING made your drawing, had it reproduced by one of the methods I described, you must now have it printed.

Excepting in the case of very limited fine editions of not more than one hundred copies, the original plates or blocks on which the designs have been engraved are very seldom used, because if anything should happen to the blocks or plates they would have to be done over again. So copies of them, called electrotypes and sometimes stereotypes, are made. The electrotype of a wood or metal block or plate is produced in

the same way as an electrotype of any other object, by usually taking a wax cast of it, putting the cast in an electrotyping bath, when a shell of copper is deposited upon it. As many of these wax casts may be made as are wanted, and as many shells are deposited as desired. These copper shells are then backed up with wood or metal and are ready to print from. They are wonderfully cheaply and quickly turned out, and in the case of magazines and books, for which a large circulation is expected, are always used; and it is almost, with good work, impossible to tell the difference between the electrotype, and the original; from a process block or wood engraving, while the original block is preserved for making additional electrotypes for future editions. In the case of cheap books, or newspapers with illustrations, the *Daily Graphic*, for example—the *Chronicle* was printed almost altogether from the original

blocks, or electrotypes—the page of type is set up with the original blocks in it, and this is stereotyped to print from ; that is, a papier maché mould is made of the entire page of type and illustrations, either by pounding down on to it, with a heavy brush, a thick sheet of papier maché till the entire page is moulded into the pulpy papier maché, or by covering it with successive sheets of thin damp paper until a solid mould or matrix of paper is made on the type ; this matrix is hardened and placed in a curved steel case, and type metal poured into the case upon the paper mould ; as soon as the type metal has cooled it is taken out, and a perfect cast of the page is seen in metal, curved so that it will fit on the cylinder of the printing press. If there are no illustrations, it may be printed right off, without further preparation ; but if the page contains illustrations, in order to get the proper amount of colour on the blacks,

and the delicacy of the greys, little pieces of paper must be put over and under the illustrations, on the printing press, to bring out their colour, by increasing or lessening the pressure. This is the way in which it is done : a man, called the overlay cutter, has several proofs of the illustration given him, and he cuts them out so as to produce a series of skeleton designs, one containing only the blacks, another the blacks and dark greys, the third the blacks, dark and light greys, and so on ; these he pastes on the top of each other, forming the picture in relief, and this relief picture is either placed under the block to be printed from, or else on the opposite cylinder under the paper on which the picture is to be printed—it must be put on very accurately and firmly, for if it slips it will ruin the whole page. All this work connected with printing is most interesting, most complicated, and most wonderfully per-

formed. In order to understand it thoroughly, you must go and work in a printing office; all illustrators should learn at least how overlays are made, how to correct them, and how to work on blocks or electros, though this is really the duty of the engraver; when they are on the printing press, little things may happen which may make or mar a whole book, which only the artist can detect, and which he should be able to set right. Therefore if you are making a beautiful book, you should not only see all the engraver's proofs of your drawings, but the printer's proofs as well; all this requires much work and more knowledge, but unless you care enough about your work to acquire this knowledge, I doubt if you will ever be a great success as an illustrator—that is, artistically.

Very much has been said lately about the artist considering the limitations of the printing press, the paper, and ink. Really to-day

with the best engravers, the best printers and paper-makers, there are no limits to the possibilities of reproducing and printing drawings. The limits are the depth of the publisher's pocket. Almost any drawing whatever can be reproduced very well, by some means, provided the editor or publisher will pay the price charged for having it reproduced, and the engravers and printers have the knowledge of their craft to reproduce it. And if the book or magazine will stand the expense, it very likely will pay the publisher. But if you are working for a magazine, it is not likely that the proprietors can afford photogravures, therefore your work must be made so that it will reproduce well by wood engraving or process. And the necessity for attention to the mechanical requirements of drawing, engraving, and printing increase, as the price of the book or paper decreases, until when one comes down, financially, to

the halfpenny papers, only those drawings can be used which will print at the utmost speed, and with the least care bestowed upon them, in poor ink and cheap paper. Still, there is no reason why the artistic quality also should degenerate; there are men at work to-day whose drawings would look just as well in the halfpenny evening papers as in a three-guinea book, and these men are to be congratulated on their perfect mastery of the cheaper methods of reproduction. Therefore try to do good work in your own way, and do not bother about anything but whether it will look well on the printed page.

UNWIN BROTHERS, PRINTERS, LONDON AND CHILWORTH.